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ARTICLE 33-24

HAZARDOUS WASTE MANAGEMENT

CHAPTER 33-24-01
GENERAL PROVISIONS

33-24-01-01. Purpose. It is the purpose of this article to provide for the comprehensive regulation of hazardous waste from "cradle-to-grave" in order to protect public health, safety and welfare, and to enhance the environment for the people of North Dakota.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-02. Scope. This article is applicable to all hazardous waste generators, transporters, and owners or operators of treatment, storage, or disposal facilities.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-03. Authority. The department has been authorized to promulgate and administer this article under the provisions of North Dakota Century Code chapter 23-20.3.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-04. Definitions. As used in this article the following words have the meaning ascribed to them unless otherwise made inappropriate by use and context.

1. "Aboveground tank" means a device meeting the definition of "tank" in this section and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.

2. "Act" means North Dakota Century Code chapter 23-20.3.

3. "Active life" of a facility means the period from the initial receipt of hazardous waste at the facility until the department receives certification of final closure.

4. "Active portion" means that portion of a facility where treatment, storage, or disposal operations are being or have been conducted after the effective date of the Act and which is not a closed portion. (See also "closed portion" and "inactive portion".)

5. "Ancillary equipment" means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to storage or treatment tank or tanks between hazardous waste storage and treatment tanks to a point of disposal onsite, or to a point of shipment for disposal offsite.

6. "Aquifer" means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs.

7. "Authorized representative" means the person responsible for the overall operation of a facility or an operational unit (~~i.e.~~ for example, part of a facility), ~~e.g.~~ for example, the plant manager, superintendent, or person of equivalent responsibility.

8. "Battery" means a device consisting of one or more electrically connected electrochemical cells which is designed to receive, store, and deliver electric energy. An electrochemical cell is a system consisting of an anode, cathode, and an electrolyte, plus such connections (electrical and mechanical) as may be needed to allow the cell to deliver or receive electrical energy. The term battery also includes an intact, unbroken battery from which the electrolyte has been removed.

~~8~~9. "Boiler" means an enclosed device using controlled flame combustion and:

   a. Boilers must have the following characteristics:

      (1) The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases;

(2) The ~~unit~~ unit's combustion chamber and primary energy recovery section or sections must be of integral design. To be of integral design, the combustion chamber and the primary energy recovery section or sections (such as waterwalls and super heaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section or sections are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design: Process heaters (units that transfer energy directly to processed steam), and fluidized bed combustion units;

(3) While in operation, the unit must maintain a thermal energy recovery efficiency of at least sixty percent, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(4) The unit must export and utilize at least seventy-five percent of the recovered energy, calculated on an annual basis. In this calculation, no credit should be given for recovered heat used internally in the same unit. (Examples of internal use are the preheating of fuel or combustion air, and the driving of induced or forced draft fans or feedwater pumps); or

b. The unit is one which the department has determined, on a case-by-case basis, to be a boiler, after considering the standards of section 33-24-01-11.

~~9~~10. "Carbon regeneration unit" means any enclosed thermal treatment device used to regenerate spent activated carbon.

~~10~~11. "Certification" means a statement of professional opinion based on knowledge and belief.

~~11~~12. "Closed portion" means that portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements. (See also "active portion" and "inactive portion".)

~~12~~13. "Component" means:

a. Either the tank or ancillary equipment of a tank system; or

b. Any constituent part of a unit or any group of constituent parts of a unit which are assembled to perform a specific function (~~e.g.~~ for example, a pump seal, pump, kiln liner, kiln thermocouple).

~~13~~14. "Confined aquifer" means an aquifer bounded above and below by impermeable beds or by beds of distinctly lower permeability than that of the aquifer itself; an aquifer containing confined ground water.

~~14~~15. "Constituent" or "hazardous waste constituent" means a constituent that caused the department to list the hazardous waste in chapter 33-24-02, or a constituent listed in table 1 of section 33-24-02-14.

~~15~~16. "Container" means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

~~16~~17. "Containment building" means a hazardous waste management unit that is used to store or treat hazardous waste under the provisions of sections 33-24-05-475 through 33-24-05-479 and subpart DD of 40 CFR 265.

~~17~~18. "Contingency plan" means a document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

~~18~~19. "Corrective action management unit" or "CAMU" means an area within a facility that is designated by the department under sections 33-24-05-550 through 33-24-05-559, for the purpose of implementing corrective action requirements under section 33-24-05-58 and Resource Conservation and Recovery Act section 3008(h). A corrective action management unit shall only be used for the management of remediation wastes pursuant to implementing such corrective action requirements at the facility.

~~19~~20. "Corrosion expert" means a person who, by reason of his knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the national association of corrosion engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

~~20~~21. "Department" means the North Dakota ~~state~~ department of health. ~~and consolidated laboratories.~~

~~21~~22. "Designated facility" means a hazardous waste treatment, storage, or disposal facility which:

a. Has received a permit (or interim status) in accordance with the requirements of chapters 33-24-06 and 33-24-07;

b. Has received a permit (or interim status) from a state authorized in accordance with 40 CFR part 271; or

c. Is regulated under subdivision b of subsection 3 of section 33-24-02-06 or sections 33-24-05-230 through 33-24-05-234; and

d. That has been designated on the manifest by the generator pursuant to section 33-24-01-06. If a waste is destined to a facility in an authorized state which has not yet obtained authorization to regulate that particular waste as hazardous, then the designated facility must be a facility allowed by the receiving state to accept such waste.

23. "Destination facility" means a facility that treats, disposes of, or recycles a particular category of universal waste, except those management activities described in subsections 1 and 3 of section 33-24-05-713. A facility at which a particular category of universal waste is only accumulated is not a destination facility for the purposes of managing that category of universal waste.

~~22~~24. "Dike" means an embankment or ridge of either natural or manmade materials used to prevent the movement of liquids, sludges, solids, or other materials.

~~23~~25. "Discharge" or "hazardous waste discharge" means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water.

~~24~~26. "Disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid or hazardous waste into or on any land or water including ground water.

~~25~~27. "Disposal facility" means a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure. The term disposal facility does not include a corrective action management unit into which remediation wastes are placed.

~~26~~28. "Drip pad" is an engineered structure consisting of a curbed, free-draining base, constructed of nonearthen materials and designed to convey preservative kickback or drippage from treated wood, precipitation, and surface water run-on to an associated collection system at wood preserving plants.

~~27~~29. "Elementary neutralization unit" means a device which:

a. Is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic defined in section 33-24-02-12, or are listed in chapter 33-24-02 only for this reason; and

b. Meets the definition of tank, tank system, container, transport vehicle, or vessel.

~~28~~30. "Equivalent method" means any testing or analytical method approved by the department under sections 33-24-01-06 and 33-24-01-07.

~~29~~31. "Existing hazardous waste management facility" or "existing facility" means a facility which was in operation, or for which construction commenced on or before July 1, 1981. A facility has commenced construction if:

a. The owner or operator has obtained all necessary federal, state, and local approvals or permits necessary to begin physical construction; and

b. Either of the following:

(1) A continuous onsite, physical construction program has begun; or

(2) The owner or operator has entered into contractual obligations -which cannot be canceled or modified without substantial loss - for physical construction of the facility to be completed within a reasonable time.

~~30~~32. "Existing portion" means that land surface area of an existing waste management unit, included in part A of the permit application, as originally filed, on which wastes have been placed prior to the issuance of a permit.

~~31~~33. "Existing tank system" or "existing component" means a tank system or component that is used for the storage or treatment of hazardous waste and that is in operation, or for which installation has commenced on or prior to

July 14, 1986. Installation will be considered to have commenced if the owner or operator has obtained all federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either (1) a continuous onsite physical construction or installation program has begun, or (2) the owner or operator has entered into contractual obligations - which cannot be canceled or modified without substantial loss, for physical construction of the site or installation of the tank system to be completed within a reasonable time.

~~32~~34. "Facility" means:

a. All contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (~~e.g.~~for example, one or more landfills, surface impoundments, or combinations of them).

b. For the purpose of implementing corrective action under section 33-24-05-58, all contiguous property under the control of the owner or operator seeking a permit under North Dakota Century Code 23-20.3. This definition also applies to facilities implementing corrective action under Resource Conservation and Recovery Act section 3008(h).

~~33~~35. "Facility mailing list" means the mailing list for a facility developed and maintained by the department in accordance to the following:

a. Including those persons who request in writing to be added to the facility mailing list;

b. Soliciting persons for "area lists" from participants in past permit proceedings in that area; and

c. Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in such publications as regional and state funded newsletters, environmental bulletins, or state law journals. (The department may update the mailing list from time to time by requesting written indication of continued interest from those listed. The department may delete from the list the name of any person who fails to respond to such a request.)

~~34~~36. "Federal agency" means any department, agency, or other instrumentality of the federal government, any independent agency or establishment of the federal government including any government corporation, and the government printing office.

~~35~~37. "Federal, state, and local approvals or permits necessary to begin physical construction" means permits and approvals required under federal, state, or local hazardous waste control statutes, regulations, or ordinances.

~~36~~38. "Final closure" means the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under chapter 33-24-05 are no longer conducted at the facility unless subject to the provisions in section 33-24-03-12.

~~37~~39. "Food-chain crops" means tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans.

~~38~~40. "Freeboard" means the vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained therein.

~~39~~41. "Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

~~40~~42. "Functionally equivalent component" means a component which performs the same function or measurement and which meets or exceeds the performance specification of another component.

~~41~~43. "Generator" means any person, by site, whose act or process produces hazardous waste identified or listed in chapter 33-24-02 or whose act first causes a hazardous waste to become subject to regulation.

~~42~~44. "Ground water" means water below the land surface in a zone of saturation.

~~43~~45. "Hazardous waste" means a hazardous waste as defined in chapter 33-24-02.

~~44~~46. "Hazardous waste constituent". See "constituent".

~~45~~47. "Hazardous waste management unit" is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit, the unit includes containers and the land or pad upon which they are placed.

~~46~~48. "Hazardous waste number" means the number assigned to each hazardous waste identified in chapter 33-24-02.

~~47~~49. "Identification number" means the number assigned by the environmental protection agency and the department to each generator, transporter, and treatment, storage, or disposal facility.

~~48~~50. "Inactive portion" means that portion of a facility which is not operated after the effective date of this chapter. (See also "active portion" and "closed portion".)

~~49~~51. "Incinerator" means any enclosed device that:

a. Uses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace; or

b. Meets the definition of infrared incinerator or plasma arc incinerator.

~~50~~52. "Incompatible waste" means a hazardous waste which is unsuitable for:

a. Placement in a particular device or facility because it may cause corrosion or decay of containment materials (~~e.g.~~ for example, container inner liners or tank walls); or

b. Commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dust, mists, fumes, or gases, or flammable fumes or gases.

~~51~~53. "Industrial furnace" means any of the following enclosed devices that are integral components of manufacturing processes and that use thermal treatment to accomplish recovery of materials or energy:

a. Cement kilns;

b. Lime kilns;

c. Aggregate kilns;

d. Phosphate kilns;

e. Coke ovens; and

f. Blast furnaces.

g. Smelting, melting, and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machine, roasters, and foundry furnaces).

h. Titanium dioxide chloride process oxidation reactors.

i. Methane reforming furnaces.

j. Pulping liquor recovery furnaces.

k. Combustion devices used in the recovery of sulfur values from spent sulfuric acid.

l. Halogen acid furnaces for the production of acid from halogenated hazardous waste generated by chemical production facilities where the furnace is located on the site of a chemical production facility, the acid product has a halogen acid content of at least three percent; the acid product is used in a manufacturing process, and, except for hazardous waste burned as fuel, hazardous waste fed to the furnace has a minimum halogen content of twenty percent as generated.

m. Such other devices as the department may, after notice and comment, add to this list on the basis of one or more of the following factors:

(1) The design and use of the device primarily to accomplish recovery of material products;

(2) The use of the device to burn or reduce raw materials to make a material product;

(3) The use of a device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feed stock;

(4) The use of a device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;

(5) The use of a device in common industrial practice to produce a material product; and

(6) Other factors, as appropriate.

~~52~~54. "Individual generation site" means the contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as

a large manufacturing plant, may have one or more sources of hazardous waste, but is considered a single or individual generation site if the site or property is contiguous.

~~53~~55. "Infrared incinerator' means any enclosed device that uses electric powered resistance heaters as a source of radiant heat and which is not listed as an industrial furnace.

~~54~~56. "Inground tank" means a device meeting the definition of a "tank" in this section whereby a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

~~55~~57. "In operation" refers to a facility which is treating, storing, or disposing of hazardous waste.

~~56~~58. "Injection well" means a well into which fluids are injected. (See also the definition of "underground injection" in this section.)

~~57~~59. "Inner liner" means a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste.

~~58~~60. "Installation inspector" means a person who, by reason of his knowledge of the physical sciences and the principles of engineering, acquired by a professional education and related practical experience, is qualified to supervise the installation of tank systems.

~~59~~61. "International shipment" means the transportation of hazardous waste into or out of the jurisdiction of the United States.

~~60~~62. "Landfill" means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit.

~~61~~63. "Landfill cell" means a discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples of landfill cells are trenches and pits.

~~62~~64. "Land treatment facility" means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

~~63~~65. "Leachate" means any liquid, including any suspended components in the liquid, that have percolated through or drained from hazardous waste.

~~64~~66. "Leak detection system" means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (~~e.g.~~ for example, daily visual inspections for releases into the secondary containment system of above ground tanks) or consist of an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

~~65~~67. "Liner" means a continuous layer of natural or manmade materials beneath or on the sides of a surface impoundment, landfill, or landfill cell, which

restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate.

~~66~~68. "Major facility" means any facility classified as such by the environmental protection agency in conjunction with the department.

~~67~~69. "Management" or "hazardous waste management" means the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste.

~~68~~70. "Manifest" means the shipping document uniform hazardous manifest environmental protection agency form 8700-22 and, if necessary, environmental protection agency form 8700-22a, originated and signed by the generator in accordance with instructions included in the appendix to chapter 33-24-03.

~~69~~71. "Manifest document number" means the state environmental protection agency twelve-digit identification number assigned to the generator, plus a unique five-digit document number assigned to the uniform hazardous waste manifest by the generator for recording and reporting purposes.

72. "Mercury-containing device" means any electronic control, medical instrument, thermometer, thermostat, switch, bulb, tube, or other similar device that contains metallic mercury in an ampule or other similar container where the metallic mercury acts as a conductor of temperature, pressure, or electricity.

~~70~~73. "Mining overburden returned to the minesite" means any material overlying an economic mineral deposit which is removed to gain access to that deposit and is then used for reclamation of a surface mine.

~~71~~74. "Miscellaneous unit" means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR part 146, containment building, corrective action management unit, or unit eligible for research, development, and demonstration permit under subsection 3 of section 33-24-06-19.

~~72~~75. "Movement" means that hazardous waste transported to a facility in an individual vehicle.

~~73~~76. "Municipality" means a city, county, district, association, or other public body created by or pursuant to state law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes.

~~74~~77. "New hazardous waste management facility" or "new facility" means a facility which began operation, or for which construction commenced, after July 1, 1981. (See also "existing hazardous waste management facility".)

~~75~~78. "New tank system" or "new tank components" means a tank system or component that will be used for the storage or treatment of hazardous waste and for which installation has commenced after July 14, 1986; except, however, for purposes of subdivision b of subsection 7 of section 33-24-05-106, a new tank system is one for which construction commences after July 14, 1986. (See all "existing tank system".)

~~76~~79. "Onground tank" means a device meeting the definition of "tank" in this section and that is situated in such a way that the bottom of the tank is on

the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

~~77~~80. "Onsite" means the same or geographically contiguous property which may be divided by public or private right of way, provided the entrance and exit between the properties is at a crossroads intersection, and access is by crossing, as opposed to going along, the right of way. Noncontiguous property owned by the same person, but connected by a right of way which that person controls and to which the public does not have access is also considered onsite property.

~~78~~81. "Open burning" means the combustion of any material without the following characteristics:

a. Control of combustion air to maintain adequate temperature for efficient combustion;

b. Containment of the combustion reactions in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

c. Control of emission of the gaseous combustion products. (See also "incineration" and "thermal treatment".)

~~79~~82. "Operator" means the person responsible for the overall operation of a facility.

~~80~~83. "Owner" means the person who owns a facility or part of a facility.

~~81~~84. "Partial closure" means the closure of a hazardous waste management unit in accordance with the applicable closure requirements of chapter 33-24-05 at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile, or other hazardous waste management unit, while other units of the same facility continue to operate.

~~82~~85. "Person" means an individual, trust, firm, joint stock company, federal agency, corporation (including a government corporation), partnership, association, state, municipality, commission, political subdivision of a state, or any interstate body.

~~83~~86. "Personnel" or "facility personnel" means all persons who work at, or oversee the operation of, a hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements of chapter 33-24-05 or 40 CFR part 265, if applicable.

87. "Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest or intended for use as a plant regulator, defoliant, or desiccant, other than any article that:

a. Is a new animal drug under federal Food, Drug, and Cosmetic Act section 201(w), or

b. Is an animal drug that has been determined by regulation of the secretary of health and human services not to be a new animal drug, or

c. Is an animal feed under federal Food, Drug, and Cosmetic Act section 201(x) that bears or contains any substances described by subdivision a or b.

~~84~~88. "Pile" means any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage and that is not a containment building.

~~85~~89. "Plasma arc incinerator" means any enclosed device using a high intensity electrical discharge or arc as a source of heat and which is not listed as an industrial furnace.

~~86~~90. "Point source" means any discernible, confined, and discrete conveyance, including, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

~~87~~91. "Publicly owned treatment works" means any device or system used in the treatment (including recycling or reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by this state or a municipality. This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a publicly owned treatment works providing treatment.

~~88~~92. "Qualified ground water scientist" means a scientist or engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering, and has sufficient training and experience in ground water hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university courses that enable that individual to make sound professional judgments regarding ground water monitoring and contaminant fate and transport.

~~89~~93. "Remediation waste" means all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, which contain listed hazardous wastes or which themselves exhibit a hazardous waste characteristic, that are managed for the purpose of implementing corrective action requirements under section 33-24-05-58 and Resource Conservation and Recovery Act section 3008(h). For a given facility, remediation wastes may originate only from within the facility boundary, but may include waste managed in implementing Resource Conservation and Recovery Act sections 3004(v) or 3008(h) for releases beyond the facility boundary.

~~90~~94. "Replacement unit" means a landfill, surface impoundment, or waste pile unit from which all or substantially all of the waste is removed, and which is subsequently reused to treat, store, or dispose of hazardous waste. "Replacement unit" does not apply to a unit from which waste is removed during closure, if the subsequent reuse solely involves the disposal of waste from that unit and other closing units or corrective action areas at the facility, in accordance with an approved closure plan or department-approved corrective action.

~~91~~95. "Representative sample" means a sample of a universe or whole (~~e.g.~~ for example, waste pile, lagoon, or ground water), which can be expected to exhibit the average properties of the universe or whole.

~~92~~96. "Runoff" means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

~~93~~97. "Run-on" means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

~~94~~98. "Saturated zone" or "zone of saturation" means that part of the earth's crust in which all voids are filled with water.

~~95~~99. "Sludge" means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

~~96~~100. "Sludge dryer" means any enclosed thermal treatment device that is used to dehydrate sludge and that has a maximum total thermal input, excluding the heating value of the sludge itself, of two thousand five hundred Btu/lb of sludge treated on a wet-weight basis.

~~97~~101. "Small quantity generator" means a generator who generates less than one thousand kilograms of hazardous waste in a calendar month.

~~98~~102. "Solid waste" means a solid waste as defined in section 33-24-02-02.

~~99~~103. "Sorbent" means a material that is used to soak up free liquids by either adsorption or absorption, or both. Sorb means to either adsorb or absorb, or both.

~~100~~104. "State" means this state.

~~101~~105. "Storage" means the holding of hazardous waste at a site for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

~~102~~106. "Sump" means any pit or reservoir that meets the definition of tank and those troughs or trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities; except that as used in the landfill, surface impoundment, and waste pile rules, "sump" means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system.

~~103~~107. "Surface impoundment" or "impoundment" means a facility or part of a facility which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

~~104~~108. "Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of nonearthen materials (~~e.g.~~ for example, wood, concrete, steel, or plastic), which provide structural support.

~~105~~109. "Tank system" means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

~~106~~110. "Thermal treatment" means the treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt,

pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also "incinerator" and "open burning.")

~~107~~111. "Totally enclosed treatment facility" means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

~~108~~112. "Transfer facility" means any transportation-related facility including loading docks, parking areas, storage areas or other similar areas where shipments of hazardous waste are held during the normal course of transportation.

~~109~~113. "Transportation" means the movement of hazardous wastes by air, rail, highway, or water.

~~110~~114. "Transport vehicle" means a motor vehicle or railcar used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, railroad freight car, etc.) is a separate transport vehicle.

~~111~~115. "Transporter" means a person engaged in the offsite transportation of hazardous waste by air, rail, highway, or water.

~~112~~116. "Treatability study" means a study in which a hazardous waste is subjected to a treatment process to determine:

a. Whether the waste is amenable to the treatment process;

b. What pretreatment (if any) is required;

c. The optimal process conditions needed to achieve the desired treatment;

d. The efficiency of a treatment process for a specific waste or wastes; or

e. The characteristics and volumes of residuals from a particular treatment process.

Also included in this definition for the purpose of the subsections 5 and 6 of section 33-24-02-04 exemptions are liner compatibility, corrosion, and other material compatibility studies and toxicological and health effect studies. A "treatability study" is not a means to commercially treat or dispose of hazardous waste.

~~113~~117 "Treatment" means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

~~114~~118. "Treatment zone" means a soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed, or immobilized.

~~115~~119. "Underground injection" means the subsurface emplacement of fluids through a bored, drilled, or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension. (See also the definition of "injection well" in this section.)

~~116~~120. "Underground tank" means a device meeting the definition of "tank" in this section whose entire surface area is totally below the surface of and covered by the ground.

~~117~~121. "Unfit for use tank system" means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

~~118~~122. "United States" means the fifty states, the District of Columbia, the commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the commonwealth of the northern Mariana Islands.

123. "Universal waste" means any of the following hazardous wastes that are managed under the universal waste requirements of sections 33-24-05-701 through 33-24-05-765:

a. Batteries as described in section 33-24-05-702;

b. Pesticides as described in section 33-24-05-703; and

c. Mercury-containing devices as described in section 33-24-05-704.

124. "Universal waste handler":

a. Means:

(1) A generator of universal waste; or

(2) The owner or operator of a facility, including all contiguous property, that receives universal waste from other universal waste handlers, accumulates universal waste and sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination.

b. Does not mean:

(1) A person who treats, except under the provisions of subsection 1 or 3 of section 33-24-05-713; disposes of; or recycles universal waste; or

(2) A person engaged in the offsite transportation of universal waste by air, rail, highway, or water including a universal waste transfer facility.

125. "Universal waste transporter" means a person engaged in the offsite transportation of universal waste by air, rail, highway, or water.

~~119~~126. "Unsaturated zone" or "zone of aeration" means the zone between the land surface and the water table.

~~120~~127. "Uppermost aquifer" means the natural geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

~~121~~128. "Used oil" means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

~~122~~129. "Vessel" includes every description of watercraft, used or capable of being used as a means of transportation on the water.

~~123~~130. "Wastewater treatment unit" means a device which:

a. Is part of a wastewater treatment facility which is subject to regulation under either section 402 or 307(b) of the Clean Water Act;

b. Receives and treats or stores an influent wastewater which is a hazardous waste as identified in section 33-24-02-03 or generates and accumulates a wastewater treatment sludge which is a hazardous waste as defined in section 33-24-02-03, or treats or stores a wastewater treatment sludge which is a hazardous waste as defined in section 33-24-02-03; and

c. Meets the definition of tank or tank system.

~~124~~131. "Water (bulk shipment)" means the bulk transportation of hazardous waste which is loaded or carried on board a vessel without containers or labels.

~~125~~132. "Well" means any shaft or pit dug or bored into the earth, generally of a cylindrical form and often walled with bricks or tubing to prevent the earth from caving in.

~~126~~133. "Well injection". (See "underground injection".)

~~127~~134. "Zone of engineering control" means an area under the control of the owner/operator that, upon detection of a hazardous waste release, can be readily cleaned up prior to the release of hazardous waste or hazardous constituents to ground water or surface water.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-05. References.

1. When used in this article, the following publications are incorporated by reference:

a. "ASTM Standard Test Methods for Flash Point of Liquids by Setaflash Closed Tester", ASTM Standard D-3278-78, available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

b. "ASTM Standard Test Methods for Flash Point by Pensky-Martens Closed Tester", ASTM Standard D-93-79 or D-93-80. D-93-80 is available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

c. "ASTM Standard Method for Analysis of Reformed Gas by Gas Chromatography", ASTM Standard D 1946-82, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

d. "ASTM Standard Test Method for Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method)", ASTM Standard D 2382-83, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

e. "ASTM Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis", ASTM Standard E 169-87, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

f. "ASTM Standard Practices for General Techniques of Infrared Quantitative Analysis", ASTM Standard E 168-88, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

g. "ASTM Standard Practice for Packed Column Gas Chromatography", ASTM Standard E 260-85, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

h. "ASTM Standard Test Method for Aromatics in Light Naphthas and Aviation Gasolines by Gas Chromatography", ASTM Standard D 2267-88, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

i. "ASTM Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteriscope", ASTM Standard D 2879-86, available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

j. "ASTM Standard Test Method for Preparing Refuse-Derived Fuel (RDF) Samples for Analyses of Metals", American standard test method standard E926-88t test method C-bomb, acid digestion method, available from American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

~~j~~k. "APTI Course 415: Control of Gaseous Emissions", environmental protection agency publication EPA-450/2-81-005, December 1981, available from National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

~~k~~l. "Flammable and Combustible Liquids Code" (1977 or 1981), available from the National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210.

~~l~~m. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846 ~~[second edition, 1982 as amended by update I (April 1984), and update II (April 1985). The second edition of SW-846 and updates I and II are available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 703-487-4600. The document number is PB87-120-291 and the cost is forty-eight dollars and ninety-five cents for paper copies and thirteen dollars and fifty cents for microfiche.~~ [third edition (November 1986), as amended by updates I (July 1992), II (September 1994), IIA (August 1993)], and IIB (January 1995). The third edition of SW-846 and updates I, II, IIA, and IIB (document number 955-001-00000-1) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 512-1800. Copies may be inspected at the Library, United States environmental protection agency, 401 M Street, SW, Washington, D.C. 20460.

~~mn.~~ ~~United States environmental protection agency,~~ "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised" ~~August 1988,~~ October 1992, United States environmental protection agency publication number EPA 450R-92-019, available from the ~~National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 703-487-4600. The document number is PB89-159-396.~~ environmental protection agency, Rearach Triangle Park, North Carolina 27711.

~~no~~. The following forty-seven analytical testing methods are contained in the third edition of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" environmental protection agency publication SW-846 (November 1986) and its revision I (December 1987), which are available ~~for the cost of one hundred ten dollars~~ from the Government Printing Office, Superintendent of Documents, Washington, D.C. 20402, 202-783-3238 (document number 955-001-00000-1):[1]

FOOTNOTE: [1]The agency notes that, for guidance purposes, the third edition and its revision I supersede the second edition and its updates I and II. However, for regulatory purposes, the second edition and updates I and II remain in effect together with the forty-seven methods of the third edition and its revision I cited above. See 54 FR 40260-40269, September 29, 1989.

0010 Modified Method 5 Sampling Train
0020 Source Assessment Sampling System (SASS)
0030 Volatile Organic Sampling Train
1320 Multiple Extraction Procedure
1330 Extraction Procedure for Oily Wastes
3611 Alumina Column Cleanup and Separation of Petroleum Wastes
5040 Protocol for Analysis of Sorbent Cartridges from Volatile Organic Sampling Train
6010 Inductively Coupled Plasma Atomic Emission Spectroscopy
7090 Beryllium (AA, Direct Aspiration)
7091 Beryllium (AA, Furnace Technique)
7198 Chromium, Hexavalent (Differential Pulse Polarography)
7210 Copper (AA, Direct Aspiration)
7211 Copper (AA, Furnace Technique)
7380 Iron (AA, Direct Aspiration)
7381 Iron (AA, Furnace Technique)
7460 Manganese (AA, Direct Aspiration)
7461 Manganese (AA, Furnace Technique)
7550 Osmium (AA, Direct Aspiration)
7770 Sodium (AA, Direct Aspiration)
7840 Thallium (AA, Direct Aspiration)
7841 Thallium (AA, Furnace Technique)
7910 Vanadium (AA, Direct Aspiration)
7911 Vanadium (AA, Furnace Technique)
7950 Zinc (AA, Direct Aspiration)
7951 Zinc (AA, Furnace Technique)
9022 Total Organic Halides (TOX) by Neutron Activation Analysis
9035 Sulfate (Colorimetric, Automated, Chloranilate)
9036 Sulfate (Colorimetric, Automated, Methylthymol Blue, AA II)
9038 Sulfate (Turbidimetric)
9060 Total Organic Carbon
9065 Phenolics (Spectrophotometric, Manual 4-AAP with Distillation)
9066*Phenolics (Colorimetric, Automated 4-AAP with Distillation)
9067 Phenolics (Spectrophotometric, MBTH with Distillation)
9070 Total Recoverable Oil and Grease (Gravimetric, Separatory Funnel Extraction)
9071 Oil and Grease Extraction Method for Sludge Samples
9080 Cation-Exchange Capacity of Soils (Ammonium Acetate)

9081 Cation-Exchange Capacity of Soils (Sodium Acetate)
9100 Saturated Hydraulic Conductivity, Saturated Leachate Conductivity, and Intrinsic Permeability
9131 Total Coliform: Multiple Tube Fermentation Technique
9132 Total Coliform: Membrane Filter Technique
9200 Nitrate
9250 Chloride (Colorimetric, Automated Ferricyanide AAI)
9251 Chloride (Colorimetric, Automated Ferricyanide AAII)
9252 Chloride (Titrimetric, Mercuric Nitrate)
9310 Gross Alpha and Gross Beta
9315 Alpha-Emitting Radium Isotopes
9320 Radium-228

FOOTNOTE: *When Method 9066 is used it must be preceded by the manual distillation specified in procedure 7.1 of Method 9065. Just prior to distillation in Method 9065, adjust the sulfuric acid-preserved sample to pH 4 with 1 + 9 NaOH. After the manual distillation is completed, the autoanalyzer manifold is simplified by connecting the re-sample line directly to the sampler.

p. API Publication 2517, third edition, February 1989, "Evaporative Loss from External Floating-Roof Tanks", available from the American Petroleum Institute, 1220 L Street, Northwest, Washington, D.C. 20005.

q. "ASTM Standard Test Method for Vapor Pressure - Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope", ASTM Standard D 2879-92, available from American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, Pennsylvania, 19103.

2. The references listed in subsection 1 are also available for inspection at the Office of the Federal Register, ~~1100 L Street Northwest,~~ 800 North Capitol Street Northwest, Suite 700, Washington, D.C. 20408. These incorporations by reference were approved by the director of the federal register. These materials are incorporated as they exist on the date of approval and a notice of any change in these materials will be published in the federal register.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-01-06. General rulemaking petitions.

1. Any person may petition the department to modify or revoke any provisions in chapters 33-24-01 through 33-24-05. This section sets forth general requirements which apply to all such petitions. Section 33-24-01-07 sets forth additional requirements for petitions to add a testing or analytical method to chapter 33-24-02 or 33-24-05. Section 33-24-01-08 sets forth additional requirements for petitions to exclude a waste or waste-derived material at a particular facility from section 33-24-02-03 or the lists of hazardous wastes in chapter 33-24-02~~.~~ and sets forth additional requirements for petitions to amend chapter 33-24-05 to include additional hazardous wastes or categories of hazardous waste as universal waste.

2. Each petition must be submitted to the department by certified mail and must include:

a. The petitioner's name and address;

b. A statement of the petitioner's interest in the proposed action;

c. A description of the proposed action, including (where appropriate) suggested regulatory language; and

d. A statement of the need and justification for the proposed action, including any supporting tests, studies, or other information.

3. The department will make a tentative decision to grant or deny a petition and will publish notice of such tentative decision.

4. Upon the written request of any interested person, the department may, at its discretion, hold an informal public hearing to consider oral comments on the tentative decision. A person requesting a hearing must state the issues to be raised and explain why written comments would not suffice to communicate the person's views. The department, may in any case, decide on its own motion to hold an informal public hearing.

5. After evaluating all public comments, the department will make a final decision.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-07. Petitions for equivalent testing or analytical methods.

1. Any person seeking to add a testing or analytical method to chapter 33-24-02 or 33-24-05 may petition for a regulatory amendment to this section and section 33-24-01-06. To be successful, the person must demonstrate to the satisfaction of the department that the proposed method is equal to or superior to the corresponding method prescribed in chapter 33-24-02 or 33-24-05, in terms of its sensitivity, accuracy, and precision, for example, reproducibility.

2. Each petition must include, in addition to the information required by section 33-24-01-06:

a. A full description of the proposed method, including all procedural steps and equipment used in the method;

b. A description of the types of wastes or waste matrices for which the proposed method may be used;

c. Comparative results obtained from using the proposed method with those obtained from using the relevant or corresponding methods prescribed in chapter 33-24-02 or 33-24-05;

d. An assessment of any factors which may interfere with, or limit the use of, the proposed method; and

e. A description of the quality control procedures necessary to ensure the sensitivity, accuracy and precision of the proposed method.

3. After receiving a petition for an equivalent method, the department may request any additional information of the proposed method which it may reasonably require to evaluate the method.

History: Effective January 1, 1984; amended effective December 1, 1988.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-08. Petitions to amend chapter 33-24-02 to exclude a waste produced at a particular facility~~.~~ and amend chapter 33-24-05 to include additional hazardous waste or wastes as universal waste.

1. Any person seeking to exclude a waste at a particular generating facility from the lists in sections 33-24-02-15 through 33-24-02-18 may petition for a regulatory amendment under this section and section 33-24-01-06. To be successful:

   a. The petitioner must demonstrate to the satisfaction of the department that the waste produced by a particular generating facility does not meet any of the criteria under which the waste was listed as a hazardous or an acutely hazardous waste; and

   b. Based on a complete application, the department must determine, where it has a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste. A waste which is so excluded, however, still may be a hazardous waste by operation of sections 33-24-02-10 through 33-24-02-14.

2. The procedures in this section and section 33-24-01-06 may also be used to petition the department for a regulatory amendment to exclude waste from paragraph 2 of subdivision b of subsection 1 of section 33-24-02-03 or subsection 3 of section 33-24-02-03, a waste which is described in these sections and is either a waste listed in sections 33-24-02-15 through 33-24-02-18, or is derived from a waste listed in sections 33-24-02-15 through 33-24-02-18. This exclusion may only be issued for a particular generating, storage, treatment, or disposal facility. The petitioner must make the same demonstration as required by subsection 1. Where the waste is a mixture of solid waste and one or more listed hazardous wastes or is derived from one or more hazardous wastes, this demonstration must be made with respect to the waste mixture as a whole; analysis must be conducted for not only those constituents for which the listed waste contained in the mixture was listed as hazardous, but also for factors (including additional constituents) that could cause the waste mixture to be a hazardous waste. A waste which is so excluded may still be a hazardous waste by operation of sections 33-24-02-10 through 33-24-02-14.

3. If the waste is listed with codes "I", "C", "R", or "E" in sections 33-24-02-15 through 33-24-02-18:

   a. The petitioner must show that the waste does not exhibit the relevant characteristics for which the waste was listed as defined in sections 33-24-02-11, 33-24-02-12, 33-24-02-13, or 33-24-02-14 using any applicable methods prescribed therein. The petitioner also must show that the waste does not exhibit any of the other characteristics defined in sections 33-24-02-11, 33-24-02-12, 33-24-02-13, or 33-24-02-14 using any applicable methods prescribed therein.

   b. Based on a complete application, the department must determine, where it has a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste. A

waste which is so excluded, however, still may be a hazardous waste by operation of sections 33-24-02-10 through 33-24-02-14.

4. If the waste is listed with code "T" in sections 33-24-02-15 through 33-24-02-18:

   a. The petitioner must demonstrate that the waste:

      (1) Does not contain the constituent or constituents (as defined in appendix IV of chapter 33-24-02) that caused the department to list the ~~wastes,~~ waste, using the appropriate test methods prescribed in ~~appendix III of chapter 33-24-02; or~~ "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, as incorporated by reference in section 33-24-01-05; or

      (2) Containing one or more of the hazardous constituents (as defined in appendix IV of chapter 33-24-02) that caused the department to list the waste, does not meet the criterion of subdivision c of subsection 1 of section 33-24-02-09 when considering the factors used by the department in paragraphs 1 through 11 of subdivision c of subsection 1 of section 33-24-02-09 under which the waste was listed as hazardous; and

   b. Based on a complete application, the department must determine where they have a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste; and

   c. The petitioner must demonstrate that the waste does not exhibit any characteristics defined in sections 33-24-02-11, 33-24-02-12, 33-24-02-13, and 33-24-02-14.

   d. A waste which is so excluded, however, still may be a hazardous waste by operation of sections 33-24-02-10 through 33-24-02-14.

5. If the waste is listed with the code "H" in sections 33-24-02-15 through 33-24-02-18.

   a. The petitioner must demonstrate that the waste does not meet the criterion of subdivision d of subsection 1 of section 33-24-02-09; and

   b. Based on a complete application, the department must determine where it has a reasonable basis to believe that additional factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste; and

   c. The petitioner must demonstrate that the waste does not exhibit any of the characteristics defined in sections 33-24-02-11, 33-24-02-12, 33-24-02-13, and 33-24-02-14 using any applicable methods prescribed therein.

   d. A waste which is so excluded, however, still may be a hazardous waste by operation of sections 33-24-02-10 through 33-24-02-14.

6. Reserved for listing radioactive wastes.

7. Reserved for listing infectious wastes.

8. Demonstration samples must consist of enough representative samples, but in no case less than four samples, taken over a period of time sufficient to represent the variability or the uniformity of the waste.

9. Each petition must include, in addition to the information required by subsection 2 of section 33-24-01-06:

   a. The name and address of the laboratory facility performing the sampling or tests of the wastes;

   b. The names and qualifications of the persons sampling and testing the wastes;

   c. The dates of sampling and testing;

   d. The location of the generating facility;

   e. A description of the manufacturing processes or other operations and feed materials producing the waste and an assessment of whether such processes, operations, or feed materials can or might produce a waste that is not covered by the demonstration;

   f. A description of the waste and an estimate of average and maximum monthly and annual quantities of waste covered by the demonstration;

   g. Pertinent data on and discussion of the factors delineated in the respective criterion for listing a hazardous waste where the demonstration is based on the factors in subdivision c of subsection 1 of section 33-24-02-09;

   h. A description of the methodologies and equipment used to obtain the representative sample;

   i. A description of the sample handling and preparation techniques, including techniques used for extraction, containerization and preservation of the sample;

   j. A description of the tests performed (including results);

   k. The names and model numbers of the instruments used in performing the tests; and

   l. The following statement signed by the generator of the waste or the generator's authorized representative:

      I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

10. After receiving a petition for an exclusion, the department may request any additional information which it may reasonably require to evaluate the petition.

11. An exclusion will only apply to the waste generated at the individual facility covered by the demonstration and will not apply to wastes from any other facility.

12. The department may exclude only part of the waste for which the demonstration is submitted where it has reason to believe that variability of the waste justifies a partial exclusion.

13. Any person seeking to add a hazardous waste or category of hazardous waste to the universal waste regulations of chapter 33-24-05 may petition for a regulatory amendment under this subsection and sections 33-24-05-760 and 33-24-05-761.

14. To be successful, the petitioner must demonstrate to the satisfaction of the department that regulation under the universal waste regulations of chapter 33-24-05: is appropriate for the waste or category of waste; will improve management practices for the waste or category of waste; and will improve implementation of the hazardous waste program. The petition must include the information required by subsection 2 of section 33-24-01-06. The petition should include as many of the factors listed in section 33-24-05-761 as are appropriate for the waste or category of waste addressed in the petition.

15. The department will grant or deny a petition using the factors listed in section 33-24-05-761. The decision will be based on the weight of evidence showing that regulation under chapter 33-24-05 is appropriate for the waste or category of waste, will improve management for the waste or category of waste, and will improve implementation of the hazardous waste program.

16. The department may request additional information needed to evaluate the merits of the petition.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-09. Variances from Classification as a Solid Waste. In accordance with the standards and criteria in section 33-24-01-10 and the procedures in section 33-24-01-12, the department may determine on a case-by-case basis that the following recycled materials are not solid wastes:

1. Materials that are accumulated speculatively without sufficient amounts being recycled (as defined in subdivision h of subsection 3 of section 33-24-02-01.

2. Materials that are reclaimed and then reused within the original ~~primary~~ production process in which they were generated.

3. Materials that have been reclaimed but must be reclaimed further before the materials are completely recovered.

History: Effective October 1, 1986; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-10. Standards and criteria for variances from classification as a solid waste.

1. The department may grant requests for a variance ~~for~~ from classifying as a solid waste those materials that are accumulated speculatively without sufficient amounts being recycled if the applicant demonstrates that sufficient amounts of the material will be recycled or transferred for recycling in the following year. If a variance is granted, it is valid only for the following year, but can be renewed, on an annual basis, by filing a new application. The department's decision will be based on the following ~~standards and~~ criteria:

   a. The manner in which the material is expected to be recycled, when the material is expected to be recycled, and whether this expected disposition is likely to occur (for example, because of past practice, market factors, the nature of the material, or contractual arrangements for recycling);

   b. The reason that the applicant has accumulated the material for one or more years without recycling seventy-five percent of the volume accumulated at the beginning of the year;

   c. The quantity of material already accumulated and the quantity expected to be generated and accumulated before the material is recycled;

   d. The extent to which the material is handled to minimize loss; and

   e. Other relevant factors.

2. The department may grant requests for a variance from classifying as a solid waste those materials that are reclaimed and then reused as feed stock within the original ~~primary~~ production process in which the materials were generated if the reclamation operation is an essential part of the production process. This determination will be based on the following criteria:

   a. How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials;

   b. The prevalence of the practice on an industrywide basis;

   c. The extent to which the material is handled before reclamation to minimize loss;

   d. The time periods between generating the material and its reclamation, and between reclamation and return to the original primary production process;

   e. The location of the reclamation operation in relation to the production process;

   f. Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form;

   g. Whether the person who generates the material also reclaims it; and

   h. Other relevant factors.

3. The department may grant requests for a variance from classifying as a solid waste those materials that have been reclaimed, but must be reclaimed further before recovery is completed if, after initial reclamation, the

resulting material is commodity-like (even though it is not yet a commercial product, and has to be reclaimed further). This determination will be based on the following factors:

a. The degree of processing the material has undergone and the degree of further processing that is required;

b. The value of the material after it has been reclaimed;

c. The degree to which the reclaimed material is like an analogous raw material;

d. The extent to which an end market for the reclaimed material is guaranteed;

e. The extent to which the reclaimed material is handled to minimize loss; and

f. Other relevant factors.

History: Effective October 1, 1986; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-11. Variance to be classified as a boiler. In accordance with the standards and criteria in section 33-24-01-04 (definition of "boiler"), and the procedures in section 33-24-01-12, the department may determine on a case-by-case basis that certain enclosed devices using controlled flame combustion are boilers, even though they do not otherwise meet the definition of boiler contained in section 33-24-01-04, after considering the following criteria:

1. The extent to which the unit has provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases;

2. The extent to which the combustion chamber and energy recovery equipment are of integral design;

3. The efficiency of energy recovery, calculated in terms of the recovered energy compared with the thermal value of the fuel;

4. The extent to which exported energy is utilized;

5. The extent to which the device is in common and customary use as a "boiler" functioning primarily to produce a steam, heated fluids, or heated gases; and

6. Other factors, as appropriate.

History: Effective October 1, 1986; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-12. Procedures for variances from classification as a solid waste or to be classified as a boiler. The department will use the following procedures in evaluating applications for variances from classification as a solid waste or applications to classify particular enclosed flame combustion devices as boilers:

1. The applicant must apply to the department for the variance. ~~In the application to the department, the applicant~~ The application must address the relevant criteria contained in section 33-24-01-10 or 33-24-01-11.

2. The department will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will be provided by newspaper advertisement ~~and~~ or radio broadcast in locality where the recycler is located. The department will accept comments on the tentative ~~decisions~~ decision for thirty days, and may also hold a public hearing upon request or at its discretion. The department will issue a final decision after receipt of comments and after the hearing~~, if any, and this decision may not be appealed to the department.~~ , if any.

History: Effective October 1, 1986; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-13. Additional regulation of certain hazardous waste recycling activities on a case-by-case basis. The department may decide on a case-by-case basis that persons accumulating or storing the recyclable materials described in paragraph 4 of subdivision b of subsection 1 of section 33-24-02-06 should be regulated under subsections 2 and 3 of section 33-24-02-06. The basis for this decision is that the materials are being accumulated or stored in a manner that does not protect human health and the environment because the materials or their toxic constituents have not been adequately contained, or because the materials being accumulated or stored together are incompatible. In making this decision, the department will consider the following factors:

1. The types of materials accumulated or stored and the amounts accumulated or stored;

2. The method of accumulation or storage;

3. The length of time the materials have been accumulated or stored before being reclaimed;

4. Whether any contaminants are being released into the environment or are likely to be so released; and

5. Other relevant factors. The procedures for this decision are set forth in section 33-24-01-14 of this chapter.

History: Effective October 1, 1986; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-14. Procedures for case-by-case regulation of hazardous waste recycling activities. The department will use the following procedures when determining whether to regulate hazardous waste recycling activities described in paragraph 4 of subdivision b of subsection 1 of section 33-24-02-06 under the provisions of subsections 2 and 3 of section 33-24-02-06 rather than under the provisions of section 33-24-05-230.

1. If a generator is accumulating the waste, the department will issue a notice setting forth the factual basis for the decision and stating that the person must comply with the applicable requirements of chapter 33-24-03. The notice will become final within thirty days, unless the person served

requests a public hearing to challenge the decision. Upon receiving such a request, the department will hold a public meeting and will provide notice of the hearing to the public and allow public participation at the hearing. The department will issue a final order after the hearing stating whether or not compliance with chapter 33-24-03 is required. The order becomes effective thirty days after serving the decision unless the department specifies a later date or unless review by the department is requested. The order may be appealed to the department by any person who participated in the public hearing. The department may choose to grant or to deny the appeal. Final department action occurs when a final order is issued and department review procedures are exhausted.

2. If the person is accumulating the recyclable materials as a storage facility, the notice will state that the person must obtain a permit in accordance with all applicable provisions of chapters 33-24-06 and 33-24-07. The owner or operator of the facility must apply for a permit within no less than sixty days and no more than six months of notice, as specified in the notice. If the owner or operator of the facility wishes to challenge the department's decision, the owner or operator may do so in his or her permit application, in a public hearing held on the draft permit, or in comments filed on the draft permit, or on the notice of intent to deny the permit. The fact sheet accompanying the permit will specify the reasons for the department's determination. The question whether the department's decision was proper will remain open for consideration during the public comment period discussed under chapter 33-24-07 and in any subsequent hearing.

History: Effective October 1, 1986; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-15. Variances. The department may, on a case-by-case basis grant a variance from this article upon such conditions and within such time limitations as it may prescribe provided it is no less stringent than the federal regulations, 40 CFR parts 260 through 281.

History: Effective December 1, 1988; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-01-16. Availability of information. All records related to this article not specifically protected by state or federal law must be made available to the public in accordance with the following provisions:

1. Definitions. For the purposes of this article:

   a. "Record" means any document, writing, photograph, sound or magnetic recording, drawing, or other similar thing by which information has been preserved, from which the information can be retrieved and copied, and which is, was, or is alleged to be possessed by the department. The term includes informal writings (such as drafts and the like) and also includes information preserved in a form which must be translated or deciphered by machine in order to be intelligible to humans. The term includes documents and the like which were created or acquired by the department, its predecessors, its officers, and its employees by use of state funds or in the course of transacting official business. However, the term does not include materials which are legally owned by a department officer or employee in his or her

purely personal capacity. Nor does the term include materials published by nonstate organizations which are readily available to the public, such as books, journals, and periodicals available through reference libraries, even if such materials are in the department's possession.

b. "Request" means a request to inspect or obtain a copy of one or more records.

c. "Requester" means any person who has submitted a request to the department.

2. Requests to which this section applies.

a. This section applies to any written request received by the department whether or not it cites this availability of information section.

b. Any written request to the department for existing records prepared by the department for routine public distribution, for example, pamphlets, copies of speeches, press releases, and educational materials must be honored. No individual determination is necessary in such cases, since preparation of the records for routine public distribution itself constitutes a determination that the records are available to the public.

3. Requests which do not reasonably describe records sought. The department will make every reasonable effort to assist in the identification and description of records sought and to assist the requester in formulating his request. If a request is described in general terms (~~e.g.~~ for example, all records having to do with a certain area), the department may communicate with the requester (by telephone when practicable) with a view toward reducing the administrative burden of processing a broad request and minimizing the fees payable by the requester. Such attempts will not be used as a means to discourage requests, but rather as a means to help identify more specificity the records actually sought.

4. Time allowed for issuance of initial determination.

a. Except as otherwise provided in this section, not later than the tenth working day after the date of receipt of a request for records, the department shall issue a written determination to the requester stating which of the requested records will, and which will not, be released and the reason for any denial of a request. If the records are not known to exist or are not in the department's possession, the department shall so inform the requester. To the extent requested records which are in the department's possession are published by the department, the response may inform the requester that the records are available for inspection and where copies can be obtained.

b. The period of ten working days must be measured from the date the request is first received and logged into the department.

c. There must be excluded from the period of ten working days (or any extension thereof) any time which elapses between the date that a requester is notified by the department that his request does not reasonably identify the records sought, and the date that the requester furnishes a reasonable identification.

d. There must be excluded from the period of ten working days (or any extension thereof) any time which elapses between the date that a

requester is notified by the department that prepayment or assurance of payment of fees is required, and the date the requester pays (or makes suitable arrangements to pay) such charges.

e. The department may extend the basic ten-day period established under subdivision a by a period not to exceed ten additional working days, by furnishing written notice to the requester within the basic ten day period, stating the reasons for such extension and a date by which the office expects to be able to issue a determination. The period may be so extended only when absolutely necessary, only for the period required, and only when one or more of the following unusual circumstances require the extension:

(1) There is a need to search and collect the requested records from field facilities or other establishments that are separate from the office processing the request;

(2) There is a need to search for, collect, and appropriately examine a voluminous amount of separate and distinct records which are demanded in a single request; or

(3) There is a need for consultation, which must be conducted with all practicable speed, with another division having a substantial interest in the determination of the request.

f. Failure of the department to issue a determination within the ten-day period or any authorized extension constitutes final department action which authorizes the requester to commence an action in an appropriate state district court to obtain the records.

5. Initial denials of requests.

a. An initial denial of a request may be issued only for the following reasons:

(1) The records requested are specifically protected by state or federal law, or

(2) The records are deemed enforcement-sensitive.

b. Each initial determination which denies, in whole or in part, a request for one or more existing located records must state that the requester may appeal the initial denial by sending a written appeal to the department within thirty days of receipt of the determination.

6. Appeals from initial denials - manner of making.

a. Any person whose request for one or more existing, located department records has been denied, in whole or in part, by an initial determination may appeal that denial by addressing a written appeal to the department.

b. An appeal should be mailed no later than thirty calendar days after the date the requester received the initial determination on the request. An untimely appeal may be treated either as a timely appeal or as a new request.

c. The appeal letter must contain a reference to the regard line, the date of initial determination, and the name and address of the person who issued the initial denial. The appeal letter must also indicate

which of the records to which access was denied are the subjects of the appeal.

7. Appeal determination - By whom made. The department's legal counsel shall make one of the following legal determinations in connection with an appeal from the initial denial of a request for an existing, located record:

   a. The record must be disclosed;

   b. The record must not be disclosed because a statute or a provision of this section so requires; or

   c. The record is exempt from mandatory disclosure but legally may be disclosed as a matter of department discretion.

8. Contents of determination denying appeal. A determination denying an appeal from an initial denial must be in writing, must state which of the exemptions apply to each requested existing record, and must state the reasons for denial of the appeal. A denial determination must also state the name and position of the department employee who directed that the appeal be denied. Such a determination must further state that the person whose request was denied may obtain de novo judicial review of the denial by complaint filed with the district court of the United States in the district in which the complainant resides, or in which the department's records are located. However, no determination denying an appeal may reveal the existence or nonexistence of records if identifying the mere fact of the existence or nonexistence of those records would reveal confidential business information, confidential personal information, or a confidential investigation. Instead of identifying the existence or nonexistence of the records, the determination must state that the appeal is denied because either the records do not exist or they are exempt from mandatory disclosure.

9. Time allowed for issuance of appeal determination.

   a. Except as otherwise provided in this section, not later than the twentieth working day after the date of receipt of the informational request of an appeal from an initial denial of a request for records, the department's legal counsel shall issue a written determination stating which of the requested records (as to which an appeal was made) shall be disclosed and which shall not be disclosed.

   b. The period of twenty working days must be measured from the date an appeal is first received by the department.

   c. The department's legal counsel may extend the basic twenty-day period established under subdivision a by a period not to exceed ten additional working days, by furnishing written notice to the requester within the basic twenty-day period stating the reason for such extension and the date by which the office expects to be able to issue a determination. The period may be so extended only when absolutely necessary, only for the period required, and only when one or more of the following unusual circumstances require the extension:

      (1) There is a need to search for and collect the records from field facilities or other establishments that are separate from the office processing the appeal;

(2) There is need to search for, collect, and appropriately examine a voluminous amount of separate and distinct records which are demanded in a single request; or

(3) There is a need for consultation, which must be conducted with all practicable speed, with another division having a substantial interest in the determination of the request.

d. No extension of the twenty-day period shall be issued under subdivision c which would cause the total of all such extensions to exceed ten working days.

10. Failure to decide on appeal by deadline. Failure to decide if an appealed record must be disclosed by the deadline imposed in this section constitutes final agency action and the requester's right to judicial review.

11. Fees - payments - waiver.

a. Fees will be charged requesters for searching for and producing requested records in accordance with department policy.

b. Reduction or waiver of fee. The fee chargeable under department policy must be reduced or waived by the department if the department determines that a waiver or reduction of the fee is in the public interest because furnishing the information can be considered as primarily benefiting the general public. Reduction or waiver of fees must be considered (need not necessarily be granted) in connection with each request from a representative of the press or other communications medium, or from a public interest group.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-30.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

CHAPTER 33-24-02
IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

33-24-02-01. Purpose and scope.

1. This chapter identifies those solid wastes which are subject to regulation as hazardous wastes and which are subject to the notification requirements. In this chapter:

   a. Sections 33-24-02-01 through 33-24-02-07 define the terms "solid waste" and "hazardous waste", identify those wastes which were excluded from regulation under chapters 33-24-03 through 33-24-07 and establish special management requirements for hazardous waste produced by conditionally exempt small quantity generators and hazardous waste which is recycled.

   b. Sections 33-24-02-08 and 33-24-02-09 set forth the criteria used to identify characteristics of hazardous waste and to list particular hazardous waste.

   c. Sections 33-24-02-~~08~~10 through 33-24-02-14 identify characteristics of hazardous waste.

   d. Sections 33-24-02-15 through 33-24-02-18 list particular hazardous wastes.

2. The definition of solid waste contained in this chapter:

a. Applies only to wastes that also are hazardous for purposes of the rules implementing North Dakota Century Code chapter 23-20.3. For example, it does not apply to materials (such as nonhazardous scrap, paper, textiles, or rubber) that are not otherwise hazardous wastes and that are recyclable.

b. This chapter identifies only some of the materials which are solid wastes and hazardous wastes under North Dakota Century Code chapter 23-20.3. A material which is not defined as a solid waste in this chapter or is not a hazardous waste identified or listed in this chapter, is still a solid waste and a hazardous waste for purposes of these sections if:

(1) In the case of North Dakota Century Code section 23-20.3-06 the department has reason to believe that the material may be a hazardous waste within the meaning of subsection 5 of North Dakota Century Code section 23-20.3-02; or

(2) In the case of North Dakota Century Code section 23-20.3-08, the statutory elements are established.

3. For the purpose of sections 33-24-02-02 and 33-24-02-06:

a. A "spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

b. "Sludge" has the same meaning used in section 33-24-01-04.

c. A "byproduct" is a material that is not one of the primary products of a production process and is not solely or separately produced by the production process. Examples are process residue, such as slags or distillation column bottoms. The term does not include a coproduct that is produced for the general public's use and is ordinarily used in the form it is produced by the process.

d. A material is "reclaimed" if it is processed to recover a usable product, or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents.

e. A material is "used or reused" if it is either:

(1) Employed as an ingredient (including ~~used~~ use as an intermediate) in an industrial process to make a product (for example, distillation bottoms from one process used as feedstock in another process). However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal containing secondary materials); or

(2) Employed in a particular function or application as an effective substitute for a commercial product (for example, spent pickle liquor used as phosphorous precipitant and sludge conditioner or in wastewater treatment).

f. "Scrap metal" is bits and pieces of metal parts (~~e.g.~~ for example, bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g. for example, radiators, scrap automobiles, railroad boxcars), which when worn or superfluous can be recycled.

g. A material is "recycled" if it is used, reused, or reclaimed.

h. A material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year (commencing on January first) the amount of material that is recycled, or transferred to a different site for recycling, equals at least seventy-five percent by weight or volume of the amount of that material accumulated at the beginning of the period. In calculating the percentage of turnover, the seventy-five percent requirement is to be applied to each material of the same type (~~e.g.,~~ for example, slags from a single smelting process) that is recycled in the same way (~~i.e.~~ for example, from which the same material is recovered or that is used in the same way). Material accumulating in units that would be exempt from regulation under subsection 3 of section 33-24-02-04 are not to be included in making the calculation. (Materials that are already defined as solid wastes also are not to be included in making the calculation.) Materials are no longer in this category once they are removed from accumulation for recycling, however.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-02. Definition of solid waste.

1. A solid waste is:

   a. Any discarded material that is not excluded by subsection 1 of section 33-24-02-04 or that is not excluded by variance granted under sections 33-24-01-09 and 33-24-01-10.

   b. A discarded material is any material which is:

      (1) Abandoned, as explained in subsection 2;

      (2) Recycled, as explained in subsection 3; or

      (3) Considered inherently wastelike, as explained in subsection 4.

2. Materials are solid wastes if they are abandoned by being:

   a. Disposed of;

   b. Burned or incinerated; or

   c. Accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

3. Materials are solid wastes if they are recycled or accumulated, stored, or treated before recycling as specified in subdivisions a through d of subsection 3.

   a. Used in a manner constituting disposal.

      (1) Materials noted with an "asterisk" in column 1 of chart 1 are solid wastes when they are:

(a) Applied to or placed on the land in a manner that constitutes disposal; or

(b) Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (in which case the product itself remains a solid waste).

(2) However, commercial chemical products listed in section 33-24-02-18 are not solid wastes if they are applied to the land and that is their ordinary manner of use.

b. Burning for energy recovery.

(1) Materials noted with an "asterisk" in column 2 of chart 1 are solid wastes when they are:

(a) Burned to recover energy; or

(b) Used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself remains a solid waste).

(2) However, commercial chemical products listed in section 33-24-02-18 are not solid wastes if they are themselves fuels.

c. Reclaimed. Materials noted with an "asterisk" in column 3 of chart 1 are solid wastes when reclaimed.

d. Accumulated speculatively. Materials noted with an "asterisk" in column 4 of chart 1 are solid wastes when accumulated speculatively.

4. Inherently wastelike materials. The following materials are solid wastes when they are recycled in any manner:

a. Hazardous waste numbers F020, F021 (unless used as an ingredient to make a product at the site of generation), F022, F023, F026, and F028.

b. Secondary materials fed to a halogen acid furnace that exhibit a characteristic of a hazardous waste or are listed as a hazardous waste as defined in sections 33-24-02-10 through 33-24-02-19, except for brominated material that meets the following criteria:

(1) The material must contain a bromine concentration of at least forty-five percent;

(2) The material must contain less than a total of one percent of toxic organic compounds listed in appendix V of chapter 33-24-02; and

(3) The material is processed continually onsite in the halogen acid furnace via direct conveyance (hard piping).

c. The department will use the following criteria to add wastes to that list:

(1) The materials:

(a) Are ordinarily disposed of, burned, or incinerated; or

(b) Contain toxic constituents listed in appendix V of chapter 33-24-02 and these constituents are not ordinarily found in raw

materials or products for which the materials substitute (or are found in raw materials or products in smaller concentrations) and are not used or reused during the recycling process; and

(2) The material may pose a substantial hazard to human health and the environment when recycled.

5. Materials that are not solid waste when recycled:

a. Materials are not solid waste when they can be shown to be recycled by being:

(1) Used or reused as ingredients in an industrial process to make a product provided the materials are not being reclaimed;

(2) Used or reused as effective substitutes for commercial products; or

(3) Returned to the original process from which they are generated, without first being reclaimed or land disposed. The material must be returned as a substitute for ~~raw material feedstock, and the process must use raw materials as principle feedstocks.~~ feedstock materials. In cases where the original process to which the material is returned is a secondary process, the materials must be managed such that there is no placement on the land.

b. The following materials are solid wastes, even if the recycling involves use, reuse, or return to the original process (described in paragraphs 1 through 3 of subdivision a of subsection 5):

(1) Materials used in a manner constituting disposal, or used to produce products that are applied to the land;

(2) Materials burned for energy recovery, used to produce a fuel, or contained in fuels;

(3) Materials accumulated speculatively; or

(4) Materials listed in ~~subdivision~~subdivisions a and b of subsection 4.

6. Documentation of claims that materials are not solid wastes or are conditionally exempt from regulation. Respondents in actions to enforce regulations implementing North Dakota Century Code chapter 23-20.3 who raise a claim that a certain material is not a solid waste, or is conditionally exempt from regulation, must demonstrate that there is a known market or disposition for the material, and that they meet the terms of exclusion or exemption. In doing so, they must provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from the regulation. In addition, owners or operators of facilities claiming that they actually are recycling materials must show that they have the necessary equipment to do so.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

CHART 1

	Use constituting disposal Subdivision a of Subsection 3, of Section 33-24-02-02 (1)	Energy recovery/fuel Subdivision b of Subsection 3 of Section 33-24-02-02 (2)	Reclamation Subdivision c of Subsection 3 of Section 33-24-02-02 (3)	Speculative Accumulation Subdivision d of Subsection 3 of Section 33-24-02-02 (4)
Spent materials	(*)	(*)	(*)	(*)
Sludges (listed in Section 33-24-02-16 or Section 33-24-02-17 of Chapter 33-24-02)	(*)	(*)	(*)	(*)
Sludges exhibiting a characteristic of hazardous waste.	(*)	(*)	.....	(*)
By-products (listed in Section 33-24-02-16 or Section 33-24-02-17 of Chapter 33-24-02)	(*)	(*)	(*)	(*)
By-products exhibiting a characteristic of hazardous waste	(*)	(*)	.....	(*)
Commercial chemical products (listed in Section 33-24-02-18 of Chapter 33-24-02)	(*)	(*)	.....	.....
Scrap metal	(*)	(*)	(*)	(*)

Note - The terms "spent materials", "sludges", "by-products" and "scrap metal" are defined in Section 33-24-02-01.

33-24-02-03. Definition of hazardous waste.

1. A solid waste, as defined in section 33-24-02-02, is a hazardous waste if:

   a. It is not excluded from regulation as a hazardous waste under subsection 2 of section 33-24-02-04; and

   b. It meets any of the following criteria:

      (1) It exhibits any of the characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14 except that any mixture of a waste from the extraction, beneficiation, and processing of ores and minerals excluded under subdivision g of subsection 2 of section 33-24-02-04 and any other solid waste exhibiting a characteristic of hazardous waste under sections 33-24-02-10 through 33-24-02-14 only if it exhibits a characteristic that would not have been exhibited by the excluded waste alone if such mixture had not occurred or if it continues to exhibit any of the characteristics exhibited by the nonexcluded wastes prior to mixture. Further, for the purposes of applying the toxicity characteristic to such mixtures, the mixture is also a hazardous waste if it exceeds the maximum concentration for any contaminant listed in table 1 to section 33-24-02-14 that would not have been exceeded by the excluded waste alone if the mixture had not occurred or if it continues to exceed the maximum concentration for any contaminant exceeded by the nonexempt waste prior to the mixture.

      (2) It is listed in this chapter and has not been excluded from the lists in this chapter under sections 33-24-01-06 and 33-24-01-08.

      (3) It is a mixture of a solid waste and a hazardous waste that is listed in sections 33-24-02-15 through 33-24-02-19 solely because it exhibits one or more of the characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14, unless the resultant mixture no longer exhibits any characteristic of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14 or unless the solid waste is excluded from regulation under subdivision g of subsection 2 of section 33-24-02-04 and the resultant mixture no longer exhibits any characteristic of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14 for which the hazardous waste listed in sections 33-24-02-15 through 33-24-02-19 was listed. (However, nonwastewater mixtures are still subject to the requirements of sections 33-24-05-250 through 33-24-05-290, even if they no longer exhibit a characteristic at the point of land disposal.)

      (4) It is a mixture of solid waste and one or more hazardous wastes listed in this chapter and has not been excluded from this paragraph under sections 33-24-01-06 and 33-24-01-08; however, the following mixtures of solid wastes and hazardous wastes listed in this chapter are not hazardous wastes (except by application of paragraph 1 or 2 of subdivision b of subsection 1) if the generator can demonstrate that the mixture consists of wastewater the discharge of which is subject to regulation under subsections 18 and 19, or subsection 25 of North Dakota Century Code section 61-28-04 (including wastewater at the facilities which have eliminated the discharge of wastewater) and:

         (a) One or more of the following spent solvents listed in section 33-24-02-16 - carbon tetrachloride, tetrachloroethylene,

trichloroethylene - provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed one part per million;

(b) One or more of the following spent solvents listed in section 33-24-02-16 - methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents - provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed twenty-five parts per million;

(c) One of the following wastes listed in section 33-24-02-17 - heat exchanger bundle cleaning sludge from the petroleum refining industry (environmental protection agency hazardous waste number K050);

(d) A discarded chemical commercial product, or chemical intermediate listed in section 33-24-02-18, arising from de minimus losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For purposes of this subparagraph, "de minimus" losses include those from normal material handling operations, ~~e.g.,~~ for example, spills from the unloading or transfer of materials from bins or other containers and leaks from pipes, valves, or other devices used to transfer materials; minor leaks of process equipment, storage tanks or containers; leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing; ~~or~~

(e) Wastewater resulting from laboratory operations containing toxic (T) wastes listed in this chapter, provided that the annualized average flow of laboratory wastewater does not exceed one percent of total wastewater flow into the headworks of the facility's wastewater treatment or pretreatment system, or provided the wastes combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pretreatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation~~.~~ ;or

(f) One or more of the following wastes listed in section 33-24-02-17 - wastewaters from the production of carbamates and carbamoyl oximes (environmental protection agency hazardous waste number K157) - provided that the maximum weekly usage of formaldehyde, methyl chloride, methylene chloride, and triethylamine (including all amounts that cannot be demonstrated to be reacted in the process, destroyed through treatment, or is recovered, for example, what is discharged or

volatilized) divided by the average weekly flow of process wastewater prior to any dilutions into the headworks of the facility's wastewater treatment system does not exceed a total of five parts per million by weight; or

(g) Wastewaters derived from the treatment of one or more of the following wastes listed in section 33-24-02-17 - organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes (environmental protection agency hazardous waste number K156) - provided, that the maximum concentration of formaldehyde, methyl chloride, methylene chloride, and triethylamine prior to any dilutions into the headworks of the facility's wastewater treatment system does not exceed a total of five milligrams per liter.

(5) Rebuttable presumption for used oil. Used oil containing more than one thousand parts per million total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in sections 33-24-02-15 through 33-24-02-19. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by using an analytical method from SW-846, ~~third edition,~~ as referenced in section 33-24-01-05, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix IV of chapter 33-24-02). ~~Environmental protection agency publication SW-846, third edition, is available for the cost of one hundred ten dollars from the Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954. 202-783-3238 (document number 955-001-00000-1).~~

(a) The rebuttable presumption does not apply to metalworking oils or fluids, or both, containing chlorinated paraffins, if they are processed, through a tolling agreement, to reclaim metalworking oils or fluids, or both. The presumption does apply to metalworking oils or fluids, or both, if such oils or fluids, or both, are recycled in any other manner, or disposed.

(b) The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons removed from refrigeration units where the chlorofluorocarbons are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with chlorofluorocarbons that have been mixed with used oil from sources other than refrigeration units.

2. A solid waste which is not excluded from regulation under subdivision a of subsection 1 becomes a hazardous waste when any of the following events occur:

a. In the case of a waste listed in this chapter, when the waste first meets the listing description set forth in this chapter.

b. In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed in this chapter is first added to the solid waste.

c. In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in this chapter.

3. Unless and until it meets the criteria of subsection 4:

   a. A hazardous waste will remain a hazardous waste.

   b. Except as otherwise provided in paragraph 2:

      (1) Any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate (but not including precipitation runoff) is a hazardous waste. (However, materials that are reclaimed from solid wastes and that are used beneficially are not solid wastes and hence are not hazardous wastes under this provision unless the reclaimed material is burned for energy recovery or used in a manner constituting disposal.)

      (2) The following solid wastes are not hazardous even though they are generated from the treatment, storage, or disposal of a hazardous waste, unless they exhibit one or more of the characteristics of hazardous waste:

         (a) Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC codes 331 and 332).

         (b) Wastes from burning any of the materials exempted from regulation by paragraphs 5 through ~~8~~ 6 of subdivision c of subsection 1 of section 33-24-02-06.

         (c) Nonwastewater residue.

            [1] Nonwastewater residues, such as slag, resulting from high temperature metals recovery (HTMR) processing of K061, K062, or F006 waste, in units identified as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, rotary hearth furnace/electric furnace combinations or industrial furnaces (as defined in the definition for "industrial furnace" in section 33-24-01-04), that are disposed in solid waste management units, provided that these residues meet the generic exclusion levels identified in the tables in this paragraph for all constituents, and exhibit no characteristics of hazardous waste. Testing requirements must be incorporated in a facility's waste analysis plan or a generator's self-implementing waste analysis plan; at a minimum, composite samples of residues must be collected and analyzed quarterly or when the process or operation generating the waste changes. Persons claiming this exclusion in an enforcement action will have the burden of proving by clear and convincing evidence that the material meets all of the exclusion requirements.

Constituent	Maximum for any Single Composite Sample - Toxicity Characteristic Leaching Procedure (mg/l)
Generic exclusion levels for K061 and K062 nonwastewater HTMR residues	
Antimony	0.10
Arsenic	0.50
Barium	7.6
Beryllium	0.010

Cadmium	0.050
Chromium (total)	0.33
Lead	0.15
Mercury	0.009
Nickel	1.0
Selenium	0.16
Silver	0.30
Thallium	0.020
Zinc	70
Generic exclusion levels for F006 nonwastewater HTMR residues	
Antimony	0.10
Arsenic	0.50
Barium	7.6
Beryllium	0.010
Cadmium	0.050
Chromium (total)	0.33
Cyanide (total) (mg/kg)	1.8
Lead	0.15
Mercury	0.009
Nickel	1.0
Selenium	0.16
Silver	0.30
Thallium	0.020
Zinc	70

[2] A one-time notification and certification must be placed in the facility's files and sent to the department for K061, K062, or F006 HTMR residues that meet the generic exclusion levels for all constituents and do not exhibit any characteristics that are sent to solid waste management units. The notification and certification that is placed in the generators or treaters files must be updated if the process or operation generating the waste changes or if the solid waste management unit receiving the waste changes. However, the generator or treater need only notify the department on an annual basis if such changes occur. Such notification and certification should be sent to the department by the end of the calendar year, but no later than December thirty-first. The notification must include the following information: The name and address of the solid waste management unit receiving the waste shipments; the hazardous waste numbers and treatability groups at the initial point of generation; and, the treatment standards applicable to the waste at the initial point of generation. The certification must be signed by an authorized representative and must state as follows: "I certify under penalty of law that the generic exclusion levels for all constituents have been met without impermissible dilution and that no characteristic of hazardous waste is exhibited. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

(d) Biological treatment sludge from the treatment of one of the following wastes listed in section 33-24-02-17 - organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of

carbamates and carbamoyl oximes (environmental protection agency hazardous waste number K156), and wastewaters from the production of carbamates and carbamoyl oximes (environmental protection agency hazardous waste number K157).

4. Any solid waste described in subsection 3 is not a hazardous waste if it meets the following criteria:

   a. In the case of any solid waste, it does not exhibit any of the characteristics of hazardous waste identified in this chapter. (However, wastes that exhibit a characteristic at the point of generation may still be subject to the requirements of sections 33-24-05-250 through 33-24-05-260, even if they no longer exhibit a characteristic at the point of land disposal.); or

   b. In the case of a waste which is a listed waste under this chapter, contains a waste listed in this chapter or is derived from a waste listed in this chapter, it also has been excluded from subsection 3 under sections 33-24-01-06 and 33-24-01-08.

5. Notwithstanding subsections 1 through 4 and provided the debris as defined in sections 33-24-05-250 through 33-24-05-290 does not exhibit a characteristic identified at sections 33-24-05-210 through 33-24-05-214, the following materials are not subject to regulation under chapter 33-24-01, 33-24-02, 33-24-03, 33-24-04, 33-24-05, or 33-24-06:

   a. Hazardous debris as defined in sections 33-24-05-250 through 33-24-05-290 that has been treated using one of the required extraction or destruction technologies specified in table 1 of section 33-24-05-285; persons claiming this exclusion in an enforcement action will have the burden of proving by clear and convincing evidence that the material meets all of the exclusion requirements; or

   b. Debris as defined in sections 33-24-05-250 through 33-24-05-290 that the department, considering the extent of contamination, has determined is no longer contaminated with hazardous waste.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-04. Exclusions.

1. **Materials that are not solid wastes.** The following materials are not solid wastes for the purpose of this chapter:

   a. Domestic sewage and any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly owned treatment works for treatment. "Domestic sewage" means untreated sanitary wastes that pass through a sewer system.

   b. Industrial wastewater discharges that are point source discharges subject to regulation under subsections 18 and 19 of North Dakota Century Code section 61-28-04. (Comment: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected, stored, or treated before discharge, nor does it exclude sludges that are generated by industrial wastewater treatment.)

c. Irrigation return flows.

d. Source, special nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 et. seq.].

e. Materials subjected to in situ mining techniques which are not removed from the ground as part of the extraction process.

f. Pulping liquors (~~i.e.,~~ for example, black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless it is accumulated speculatively as defined in subsection 3 of section 33-24-02-01.

g. Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively as defined in subsection 3 of section 33-24-02-01.

h. Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided:

(1) Only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance;

(2) Reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators);

(3) The secondary materials are never accumulated in such tanks for over twelve months without being reclaimed; and

(4) The reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal.

i. Wood preserving:

(1) Spent wood preserving solutions that have been reclaimed and are reused for their original intended purpose; and

(2) Wastewaters from the wood preserving process that have been reclaimed and are reused to treat wood.

j. Hazardous waste numbers K060, K087, K141, K142, K143, K144, K145, K147, and K148, and any wastes from the coke byproducts processes that are hazardous only because they exhibit the toxicity characteristic specified in section 33-24-02-14 when, subsequent to generation, these materials are recycled to coke ovens, to the tar recovery process as a feedstock to produce coal tar, or mixed with coal tar prior to the tar's sale or refining. This exclusion is conditioned on there being no land disposal of the wastes from the point they are generated to the point they are recycled to coke ovens or tar recovery or refining processes, or mixed with coal tar.

k. Nonwastewater splash condenser dross residue from the treatment of K061 in high temperature metals recovery units, provided it is shipped in drums (if shipped) and not land disposed before recovery.

l. Recovered oil from petroleum refining, exploration and production, and from transportation incident thereto, which is to be inserted into the petroleum refining process (standard industrial classification code 2911)

at or before a point, other than direct insertion into a coker, where contaminants are removed. This exclusion applies to recovered oil stored or transported prior to insertion, except that the oil must not be stored in a manner involving placement on the land, and must not be accumulated speculatively, before being so recycled. Recovered oil is oil that has been reclaimed from secondary materials, such as wastewater, generated from normal petroleum refining, exploration and production, and transportation practices. Recovered oil includes oil that is recovered from refinery wastewater collection and treatment systems, oil recovered from oil and gas drilling operations, and oil recovered from wastes removed from crude oil storage tanks. Recovered oil does not include oil-bearing hazardous wastes listed in sections 33-24-02-14 through 33-24-02-18 (for example, K048 through K052, F037, F038). However, oil recovered from such wastes may be considered recovered oil. Recovered oil also does not include used oil as defined in section 33-24-05-600.

2. **Solid wastes that are not hazardous wastes.** The following solid wastes are not hazardous wastes:

   a. Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered, ~~e.g.,~~ for example, refuse-derived fuel, or reused. "Household waste" means any waste material (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). A resource recovery facility managing municipal solid waste shall not be deemed to be treating, storing, disposing of, or otherwise managing hazardous wastes for the purpose of regulation under this article, if such facility:

      (1) Receives and burns only:

         (a) Household waste (from single and multiple dwellings, hotels, motels, and other residential sources); and

         (b) Solid waste from commercial or industrial sources that does not contain hazardous waste; and

      (2) Such facility does not accept hazardous wastes and the owner or operator of such facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous wastes are not received at or burned in such facility.

   b. Solid wastes generated by any of the following and which are returned to the soils as fertilizers:

      (1) The growing and harvesting of agricultural crops.

      (2) The raising of animals, including animal manures.

   c. Mining overburden returned to the minesite.

   d. Fly ash waste, bottom ash waste, slag waste, and flue gas emission control wastes generated primarily from the combustion of coal or other fossil fuels, except for facilities that burn or process hazardous waste not subject to section 33-24-05-526.

e. Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy.

f. The following chromium-containing wastes:

(1) Wastes that fail the test for the toxicity characteristic because chromium is present or are listed in this chapter due to the presence of chromium, which do not fail the test for toxicity characteristic for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if it is shown by a waste generator or by waste generators that:

(a) The chromium in the waste is exclusively (or nearly exclusively) trivalent chromium;

(b) The waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium; and

(c) The waste is typically and frequently managed in nonoxidizing environments.

(2) Specific wastes which meet the standard of paragraph 1 (so long as they do not fail the test for the toxicity characteristic for any other constituent, and do not fail the test for any other characteristics) are:

(a) Chrome (blue) trimmings, chrome (blue) shavings, sewer screenings, and wastewater treatment sludges, generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

(b) Buffing dust generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue.

(c) Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; and through-the-blue.

(d) Waste scrap leather from the leather tanning industry, the shoe manufacturing industry, and other leather product manufacturing industries.

(e) Wastewater treatment sludges from the production of TiO_2 pigment using chromium-bearing ores by the chloride process.

(f) Sewer screenings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

g. Solid waste from the extraction, beneficiation and processing of ores and minerals (including coal~~)~~, ~~including~~ phosphate rock and overburden from the mining of uranium ore), except for facilities that burn or process hazardous waste not subject to section 33-24-05-526. For purposes of this subdivision, beneficiation of ores and minerals is restricted to the following activities: crushing; grinding; washing; dissolution; crystallization; filtration; sorting; sizing; drying; sintering; pelletizing; briquetting; calcining to remove water or carbon dioxide or both; roasting, autoclaving, or chlorination, or a combination thereof, in preparation for leaching (except where the roasting, autoclaving, or chlorination or a combination thereof, leaching sequence produces a final or intermediate product that does not undergo further beneficiation or processing), gravity concentration; magnetic separation; electrostatic separation; flotation; ion exchange; solvent extraction; electrowinning; precipitation; amalgamation; and heap, dump, vat, tank, and in situ leaching. For the purposes of this subdivision, solid waste from the processing of ores and minerals includes only the following wastes:

(1) Slag from primary copper processing;

(2) Slag from primary lead processing;

(3) Red and brown muds from bauxite refining;

(4) Phosphogypsum from phosphoric acid production;

(5) Slag from elemental phosphorous production;

(6) Gasifier ash from coal gasification;

(7) Process wastewater from coal gasification;

(8) Calcium sulfate wastewater treatment plant sludge from primary copper processing;

(9) Slag tailings from primary copper processing;

(10) Fluorogypsum from hydrofluoric acid production;

(11) Process wastewater from hydrofluoric acid production;

(12) Air pollution control dust or sludge from iron blast furnaces;

(13) Iron blast furnace slag;

(14) Treated residue from roasting or leaching of chrome ore;

(15) Process wastewater from primary magnesium processing by the anhydrous process;

(16) Process wastewater from phosphoric acid production;

(17) Basic oxygen furnace and open hearth furnace air pollution control dust or sludge from carbon steel production;

(18) Basic oxygen furnace and open hearth furnace slag from carbon steel production;

(19) Chloride process waste solids from titanium tetrachloride production; and

(20) Slag from primary zinc processing.

h. Cement kiln dust waste, except for facilities that burn or process hazardous waste not subject to section 33-24-05-526.

i. Solid waste that consists of discarded wood or wood products which fails the test for the toxicity characteristic solely for arsenic and which is not a hazardous waste for any other reason, if the waste is generated by persons who utilize the arsenical-treated wood and wood products for these materials intended end use.

j. Petroleum-contaminated media and debris that fail the test for the toxicity characteristic of section 33-24-02-14 (hazardous waste codes D018 through D043 only) and are subject to the corrective action regulations under chapter 33-24-08.

k. Injected ground water that is hazardous only because it exhibits the toxicity characteristic (hazardous waste codes D018 through D043 only) in section 33-24-02-14 that is reinjected through an underground injection well pursuant to free phase hydrocarbon recovery operations undertaken at petroleum refineries, petroleum marketing terminals, petroleum bulk plants, petroleum pipelines, and petroleum transportation spill sites until January 25, 1993. This extension applies to recovery operations in existence, or for which contracts have been issued, on or before March 25, 1991. For ground water returned through infiltration galleries from such operations at petroleum refineries, marketing terminals, and bulk plants, until October 2, 1991. New operations involving injection wells (beginning after March 25, 1991) will qualify for this compliance date extension (until January 25, 1993) only if:

(1) Operations are performed pursuant to a written state agreement that includes a provision to assess the ground water and the need for further remediation once the free phase recovery is completed; and

(2) A copy of the written agreement has been submitted to: characteristics section (OS-333), United States Environmental Protection Agency, 401 M Street SW, Washington, D. C. 20460.

l. Used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air-conditioning systems, mobile refrigeration, and commercial and industrial air-conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided the refrigerant is reclaimed for further use.

m. Nonterneplated used oil filters that are not mixed with waste listed in sections 33-24-02-15 through 33-24-02-19 if these oil filters have been gravity hot-drained using one of the following methods:

(1) Puncturing the filter antidrain back valve or the filter dome end and hot-draining;

(2) Hot-draining and crushing;

(3) Dismantling and hot-draining; or

(4) Any other equivalent hot-draining method that will remove used oil.

n. Used oil re-refining distillation bottoms that are used as feedstock to manufacture asphalt products.

3. **Hazardous wastes that are exempted from certain regulations.** A hazardous waste which is generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated non-waste-treatment-manufacturing unit, is not subject to regulation under chapters 33-24-03 through 33-24-07 or to the notification requirements until it exits the unit in which it was generated, unless the unit is a surface impoundment, or unless the hazardous waste remains in the unit more than ninety days after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials.

4. **Samples.**

   a. Except as provided in subdivision b, a sample of solid waste or a sample of water, soil, or air, which is collected for the sole purpose of testing to determine its characteristics or composition, is not subject to any requirements of this chapter or chapters 33-24-03 through chapter 33-24-07 or to the notification requirements when:

      (1) The sample is being transported to a laboratory for the purpose of testing;

      (2) The sample is being transported back to the sample collector after testing;

      (3) The sample is being stored by the sample collector before transport to a laboratory for testing;

      (4) The sample is being stored in a laboratory before testing;

      (5) The sample is being stored in a laboratory after testing but before it is returned to the sample collector; or

      (6) The sample is being stored temporarily in the laboratory after testing for a specific purpose, ~~e.g.,~~ for example, until conclusion of a court case or enforcement action where further testing of the sample may be necessary.

   b. In order to qualify for the exemption in paragraphs 1 and 2 of subdivision a, a sample collector shipping samples to a laboratory and a laboratory returning samples to a sample collector must:

      (1) Comply with the United States department of transportation, United States postal service, or any other applicable shipping requirement; or

      (2) Comply with the following requirements if the sample collector determines that the United States department of transportation, United States postal service, or other shipping requirements do not apply to the shipment of the sample:

         (a) Assure that the following information accompanies the sample:

            [1] The sample collector's name, mailing address, and telephone number;

            [2] The laboratory's name, mailing address, and telephone number;

            [3] The quantity of the sample;

[4] The date of shipment; and

[5] A description of the sample.

(b) Package the sample so that it does not leak, spill, or vaporize from its packaging.

c. This exemption does not apply if the laboratory determines that the waste is hazardous but the laboratory is no longer meeting any of the conditions stated in subdivision a.

5. **Treatability study samples.**

a. Except as provided in subdivision b, persons who generate or collect samples for the purpose of conducting treatability studies as defined in section 33-24-01-04, are not subject to any requirement of chapters 33-24-02 through 33-24-04 or to the notification requirements, nor are such samples included in the quantity determination of section 33-24-02-05 and subsection 4 of section 33-24-03-12 when:

(1) The sample is being collected and prepared for transportation by the generator or sample collectors;

(2) The sample is being accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility; or

(3) The sample is being transported to the laboratory or testing facility for the purpose of conducting a treatability study.

b. The exemption in subdivision a is applicable to samples of hazardous waste being collected and shipped for the purpose of conducting treatability studies provided that:

(1) The generator or sample collector uses ~~(in "treatability studies") no more than one thousand kilograms of any nonacute hazardous waste, one kilogram of acute hazardous waste, or two hundred fifty kilograms of soils, water, or debris contaminated with acute hazardous waste for each process being evaluated for each generated waste stream.~~ , in "treatability studies", no more than ten thousand kilograms of media contaminated with nonacute hazardous waste, one thousand kilograms of nonacute hazardous waste other than contaminated media, one kilogram of acute hazardous waste, twenty-five hundred kilograms of media contaminated with acute hazardous waste for each process being evaluated for each generated waste stream; and

(2) The mass of each sample shipment does not exceed ~~one thousand kilograms of nonacute hazardous waste, one kilogram of acute hazardous waste, or two hundred fifty kilograms of soils, water, or debris contaminated with acute hazardous waste.~~ ten thousand kilograms; the ten thousand kilogram quantity may be all media contaminated with nonacute hazardous waste, or may include twenty-five hundred kilograms of media contaminated with acute hazardous waste, one thousand kilograms of hazardous waste, and one kilogram of acute hazardous waste; and

(3) The sample must be packaged so that it will not leak, spill, or vaporize from its packaging during shipment and the requirements of ~~subparagraphs~~ subparagraph a or b ~~of this subdivision~~ are met.

(a) The transportation of each sample shipment complies with United States department of transportation, United States postal service, or any other applicable shipping requirements; or

(b) If the United States department of transportation, United States postal service, or other shipping requirements do not apply to the shipment of the sample, the following information must accompany the sample:

[1] The name, mailing address, and telephone number of the originator of the samples;

[2] The name, address, and telephone number of the facility that will perform the treatability study;

[3] The quantity of the sample;

[4] The date of shipment; and

[5] A description of the sample, including its hazardous waste number.

(4) The sample is shipped to a laboratory or testing facility which is exempt under subsection 6 of section 33-23-02-04 or has an appropriate hazardous waste permit or interim status.

(5) The generator or sample collector maintains the following records for a period ending three years after completion of the treatability study:

(a) Copies of the shipping document;

(b) A copy of the contract with the facility conducting the treatability study;

(c) Documentation showing:

[1] The amount of waste shipped under this exemption;

[2] The name, address, and identification number of the laboratory or testing facility that received the waste;

[3] The date the shipment was made; and

[4] Whether unused samples and residues were returned to the generator.

(6) The generator reports the information required under subparagraph c of paragraph 5 in its biennial report.

c. The department may grant requests, on a case-by-case basis, ~~for quantity limits in excess of those specified in paragraph 1 of subdivision b, for up to an additional five hundred kilograms of nonacute hazardous waste, one kilogram of acute hazardous waste, and two hundred fifty kilograms of soils, water, or debris contaminated with acute hazardous waste, to conduct further treatability study evaluation when there has been an equipment or mechanical failure during the conduct of a treatability study, there is a need to verify the results of a previously conducted treatability study, there is a need to study and analyze alternative~~

~~techniques within a previously evaluated treatment process, or there is a need to do further evaluation of an ongoing treatability study to determine final specifications for treatment. The additional quantities allowed are subject to all provisions in subdivision a and paragraphs 2 and 6 of subdivision b. The generator or sample collector must apply to the department and provide in writing the following information:~~ for up to an additional two years for treatability studies involving bioremediation. The department may grant requests on a case-by-case basis for quantity limits in excess of those specified in paragraphs 1 and 2 of subdivision b of subsection 5 and subdivision d of subsection 6 for up to an additional five thousand kilograms of media contaminated with nonacute hazardous waste, five hundred kilograms of nonacute hazardous waste, twenty-five hundred kilograms of media contaminated with acute hazardous waste, and one kilogram of acute hazardous waste:

(1) ~~The reason why the generator or sample collector requires additional quantity of sample for the treatability study evaluation and the additional quantity needed;~~ In response to requests for authorization to ship, store, and conduct treatability studies on additional quantities in advance of commencing treatability studies. Factors to be considered in reviewing such requests include the nature of the technology, the type of process, for example, batch versus continuous, size of the unit undergoing testing, particularly in relation to scale-up considerations, the time and quantity of material required to reach steady state operating conditions, or test design considerations such as mass balance calculations.

(2) ~~Documentation accounting for all samples of hazardous waste from the waste stream which have been sent for or have undergone treatability studies including the data each previous sample from the waste stream was shipped, the quantity of each previous shipment, the laboratory or testing facility to which it was shipped, what treatability study processes were conducted on each sample shipped, and available results of each treatability;~~ In response to requests for authorization to ship, store, and conduct treatability studies on additional quantities after initiation or completion of initial treatability studies, when there has been an equipment or mechanical failure during the conduct of the treatability study; there is a need to verify the results of a previous study; there is a need to study and analyze alternative techniques within a previously evaluated process; or there is a need to do further evaluation of an ongoing treatability study to determine final specifications for treatment.

(3) ~~A description of the technical modifications or change in specifications which will be evaluated and the expected results;~~ The additional quantities and timeframes allowed in paragraphs 1 and 2 are subject to all the provisions in subdivision a and paragraphs 3 through 5 of subdivision b. The generator or sample collector must apply to the authorized regulatory agency in the state where the sample is collected and provide in writing the following information:

(a) The reason why the generator or sample collector requires additional time or quantity of sample for treatability study evaluation and the additional time or quantity needed;

(b) Documentation accounting for all samples of hazardous waste from the waste stream which have been sent for or undergone treatability studies including the date each previous sample

from the waste stream was shipped, the quantity of each previous shipment, the laboratory or testing facility to which it was shipped, what treatability study processes were conducted on each sample shipped, and the available results on each treatability study;

(c) A description of the technical modifications or change in specifications which will be evaluated and the expected results;

(d) If such further study is being required due to equipment of mechanical failure, the applicant must include information regarding the reason for the failure or breakdown and also include what procedures or equipment improvements have been made to protect against further breakdowns; and

(e) Such other information that the department considers necessary.

~~(4) If such further study is being required due to equipment or mechanical failure, the applicant must include information regarding the reason for the failure or breakdown and also include what procedures or equipment improvements have been made to protect against further breakdowns; and~~

~~(5) Such other information that the department considers necessary.~~

6. **Samples undergoing treatability studies at laboratories and testing facilities.** Samples undergoing treatability studies and the laboratory or testing facility conducting such treatability studies, to the extent such facilities are not otherwise subject to hazardous waste requirements are not subject to any requirements of this article, or to the notification requirements, provided that the conditions of subdivisions a through k are met. A mobile treatment unit may qualify as a testing facility subject to subdivisions a through k. Where a group of mobile treatment units are located at the same site, the limitations specified in subdivisions a through k apply to the entire group of mobile treatment units collectively as if the group were one mobile treatment unit.

a. No less than forty-five days before conducting treatability studies, the facility notifies the department in writing that it intends to conduct treatability studies under this subsection.

b. The laboratory or testing facility conducting the treatability study has an identification number.

c. No more than a total of ~~two hundred fifty kilograms of "as received" hazardous waste is subjected to initiation of treatment in all treatability studies in any single day. "As received" waste refers to the waste as received in the shipment from the generator or sample collector.~~ ten thousand kilograms of "as received" media contaminated with nonacute hazardous waste, twenty-five hundred kilograms of media contaminated with acute hazardous waste, or two hundred fifty kilograms of other "as received" hazardous waste is subject to initiation of treatment in all treatability studies in any single day. "As received" wastes refers to the waste as received in the shipment from the generator or sample collector.

d. The quantity of "as received" hazardous waste stored at the facility for the purpose of evaluation in treatability studies does not exceed ~~one~~

~~thousand kilograms, the total of which can include five hundred kilograms of soils, water, or debris contaminated with acute hazardous waste or one kilogram of acute hazardous waste. This quantity limitation does not include:~~

~~(1) Treatability study residues; and~~

~~(2) Treatment materials (including nonhazardous solid waste) added to "as received" hazardous waste.~~

ten thousand kilograms, the total of which can include ten thousand kilograms of media contaminated with nonacute hazardous waste, twenty-five hundred kilograms of media contaminated with acute hazardous waste, one thousand kilograms of nonacute hazardous waste other than contaminated media, and one kilogram of acute hazardous waste. This quantity limitation does not include treatment materials, including nonhazardous solid waste, added to "as received" hazardous waste.

e. No more than ninety days have elapsed since the treatability study for the sample was completed, or no more than one year ~~has elapsed since the generator or sample collector shipped the sample to the laboratory or testing facility, whichever date first occurs.~~ , two years for treatability studies involving bioremediation, have elapsed since the generator or sample collector shipped the sample to the laboratory or testing facility, whichever date occurs first. Up to five hundred kilograms of treated material from a particular waste stream from treatability studies may be archived for future evaluation up to five years from the date of initial receipt. Quantities of materials archived are counted against the total storage limit for the facility.

f. The treatability study does not involve the placement of hazardous waste on the land or open burning of hazardous waste.

g. The facility maintains records for three years following completion of each study that shows compliance with the treatment rate limits and the storage time and quantity limits. The following specific information must be included for each treatability study conducted:

(1) The name, address, and identification number of the generator or sample collector of each waste sampled;

(2) The date the shipment was received;

(3) The quantity of waste accepted;

(4) The quantity of "as received" waste in storage each day;

(5) The date the treatment study was initiated and the amount of "as received" waste introduced to treatment each day;

(6) The date the treatability study was concluded; and

(7) The date any unused sample or residues generated from the treatability study were returned to the generator or sample collector or, if sent to a designated facility, the name of the facility and the identification number.

h. The facility keeps, onsite, a copy of the treatability study contract and all shipping papers associated with the transport of treatability study

samples to and from the facility for a period ending three years from the completion date of each treatability study.

i. The facility prepares and submits a report to the department by March fifteenth of each year that estimates the number of studies and the amount of waste expected to be used in treatability studies during the current year, and includes the following information for the previous calendar year:

(1) The name, address, and identification number of the facility conducting the treatability study;

(2) The types, by process, of treatability studies conducted;

(3) The names and addresses of persons for whom studies have been conducted including their identification numbers;

(4) The total quantity of waste in storage each day;

(5) The quantity and type of waste subjected to treatability studies;

(6) When each treatability study was conducted; and

(7) The final disposition of residues and unused samples from each treatability study.

j. The facility determines whether any unused sample or residues generated by the treatability study are hazardous waste under section 33-24-02-03 and, if so, are subject to chapters 33-24-02 through 33-24-06, unless the residues and unused samples are returned to the sample originator under the subsection 5 of section 33-24-02-04 exemption.

k. The facility notifies the department by letter when the facility is no longer planning to conduct any treatability studies at the site.

7. **Polychlorinated biphenyl wastes regulated under Toxic Substance Control Act.** The disposal of polychlorinated biphenyl-containing dielectric fluid and electric equipment containing such fluid authorized for use and regulated under 40 CFR 761 and that are hazardous only because they fail the test for the toxicity characteristic (hazardous waste codes D018 through D043 only) are exempt from regulation under this article, and the notification requirements.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988, December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-10

33-24-02-05. Special requirements for hazardous waste generated by conditionally exempt small quantity generators.

1. A generator is a conditionally exempt small quantity generator in a calendar month if the generator generates no more than one hundred kilograms of hazardous waste in that month.

2. Except for those wastes identified in subsections 5, 6, 7, and 10 a conditionally exempt small quantity generator's hazardous wastes are not subject to regulation under chapters 33-24-03 through 33-24-07, and the notification requirements, provided the generator complies with the requirements of subsections 6, 7, and 10.

3. Hazardous waste that is not subject to regulation or that is subject only to sections 33-24-03-02 and 33-24-03-03, subsection 3 of section 33-24-03-13, and section 33-24-03-14 is not included in the quantity determinations of this chapter and chapters 33-24-03 through 33-24-07 and is not subject to any of the requirements of those chapters. Hazardous waste that is subject to the requirements of subsections 2 and 3 of section 33-24-02-06 and sections 33-24-05-201 through 33-24-05-209 and sections 33-24-05-230 through 33-24-05-234 is included in the quantity determination of this chapter and is subject to the requirements of chapter 33-24-03 through 33-24-07.

~~4. In determining the quantity of hazardous waste generated, a generator need not include:~~

~~a. Hazardous waste when it is removed from onsite storage; or~~

~~b. Hazardous waste produced by onsite treatment (including reclamation) of the generator's hazardous waste, so long as the hazardous waste that is treated was counted once; or~~

~~c. The spent materials that are generated, reclaimed, and subsequently reused onsite, so long as such spent materials have been counted once.~~

4. When making the quantity determinations, the generator must include all hazardous waste that it generates, except hazardous waste that:

   a. Is exempt from regulation under subsections 3 through 6 of section 33-24-02-04, subdivision c of subsection 1 of section 33-24-02-06, subdivision a of subsection 1 of section 33-24-02-07, or section 33-24-02-08;

   b. Is managed immediately upon generation only in onsite elementary neutralization units, wastewater treatment units, or totally enclosed treatment facilities as defined in section 33-24-01-04;

   c. Is recycled, without prior storage or accumulation, only in an onsite process subject to regulation under subdivision b of subsection 3 of section 33-24-02-06;

   d. Is used oil managed under the requirements of subdivision d of section 1 of section 33-24-02-06 and sections 33-24-05-600 through 33-24-05-689;

   e. Is spent lead-acid batteries managed under sections 33-24-05-235 through 33-24-05-249; or

   f. Is universal waste managed under section 33-24-02-06 and sections 33-24-05-701 through 33-24-05-765.

5. If a generator generates acute hazardous waste in a calendar month in quantities greater than set forth below, all quantities of that acute hazardous waste are subject to full regulation under chapters 33-24-03 through 33-24-07, and the notification requirements.

   a. A total of one kilogram of acute hazardous waste listed in sections 33-24-02-16, 33-24-02-17, or subsection 5 of section 33-24-02-18.

   b. A total of one hundred kilograms of any residue or contaminated soil, waste, or other debris resulting from the cleanup of a spill, into or on any land or water, of any acute hazardous waste listed in sections 33-24-02-16, 33-24-02-17, or subsection 5 of section 33-24-02-18. [Comment: "Full regulation" means those regulations applicable to generators of

greater than one thousand kilograms of nonacutely hazardous waste in a calendar month.]

6. In order for acute hazardous wastes generated by a generator of acute hazardous wastes in quantities equal to or less than set forth in subdivision a or b of subsection 5 to be excluded from full regulation under this section, the generator must comply with the following requirements.

   a. Section 33-24-03-02;

   b. The generator may accumulate acute hazardous waste onsite. If the generator accumulates at any time acute hazardous wastes in quantities greater than those set forth in subdivision a of subsection 5 or subdivision b of subsection 5, all of those accumulated wastes are subject to regulation under chapter 33-24-03-07 and the applicable notification requirements. The time period of subsection 1 of section 33-24-03-12, for accumulation of wastes onsite, begins when the accumulated wastes exceed the applicable exclusion limit;

   c. A conditionally exempt small quantity generator may either treat or dispose of the generator's acute hazardous waste~~:~~ in an onsite facility or ensure delivery to an offsite storage, treatment, or disposal facility, either of which, if located in the United States, is:

      (1) Permitted under chapter 33-24-06;

      (2) In interim status under subsection 2 of section 33-20.3-05 North Dakota Century Code chapter 33-20.3;

      (3) Authorized to manage hazardous waste by the state;

      (4) Permitted, licensed, or registered by the state to manage municipal or industrial solid waste; ~~or~~ if managed in a municipal waste or industrial waste landfill subject to article 33-20;

      (5) A facility which:

         (a) Beneficially uses or reuses, or legitimately recycles or reclaims its waste; ~~or~~

         (b) Treats its waste prior to beneficial use or reuse, or legitimate recycling or reclamation~~.~~ ; or

      (6) For universal waste managed under sections 33-24-05-700 through 33-24-05-765, a universal waste handler or destination facility subject to the requirements of sections 33-24-05-700 through 33-24-05-765.

   [NOTE: Although provisions of this subsection exclude certain generators from full regulation under this section, all applicable provisions of article 33-20, North Dakota solid waste management rules apply.]

7. In order for hazardous waste generated by a conditionally exempt small quantity generator in quantities of less than one hundred kilograms of hazardous waste during a calendar month to be excluded from full regulation under this section, the generator must comply with the following requirements:

   a. Section 33-24-03-02.

   b. The conditionally exempt small quantity generator may accumulate hazardous waste onsite. If the generator accumulates at any time more

than a total of one thousand kilograms of the generator's hazardous waste, all of those accumulated wastes are subject to regulation under special provisions of chapter 33-24-03 applicable to generators of between one hundred kilograms and one thousand kilograms of hazardous waste in a calendar month as well as the requirements of chapters 33-24-04 through chapter 33-24-07 of this article and the applicable notification requirements. The time period of subsection 4 of section 33-24-03-12 for accumulation of wastes onsite begins for a conditionally exempt small quantity generator when the accumulated wastes exceed one thousand kilograms;

c. A conditionally exempt small quantity generator may either treat or dispose of the generator's hazardous waste in an onsite facility, or ensure delivery to an offsite storage, treatment, or disposal facility, either of which, if located in the United States, is:

(1) Permitted under chapter 33-24-06;

(2) In interim status under subsection 2 of section 23-20.3-05 of North Dakota Century Code chapter 23-20.3;

(3) Authorized to manage hazardous waste by the state;

(4) Permitted, licensed, or registered by the state to manage municipal or industrial solid waste; ~~or~~ if managed in a municipal waste or industrial waste landfill subject to article 33-20;

(5) A facility which:

(a) Beneficially uses or reuses, or legitimately recycles or reclaims its waste; or

(b) Treats its waste prior to beneficial use or reuse, or legitimate recycling or reclamation~~.~~ ; or

(6) For universal waste managed under sections 33-24-05-700 through 33-24-05-765, a universal waste handler or destination facility subject to the requirements of sections 33-24-05-700 through 33-24-05-765.

[NOTE: Although provisions of this subsection exclude certain generators from full regulation under this section, all applicable provisions of article 33-20, North Dakota solid waste management rules apply.]

8. Hazardous waste subject to the reduced requirements of this section may be mixed with nonhazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitations identified in this section, unless the mixture meets any of the characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14.

9. If any person mixes a solid waste with a hazardous waste that exceeds the quantity exclusion level of this section, the mixture is subject to full regulation.

10. If a conditionally exempt small quantity generator's wastes are mixed with used oil, the mixture is subject to sections 33-24-05-600 through 33-24-05-689 if it is destined to be burned for energy recovery. Any material produced from such a mixture by processing, blending, or other treatment is also so regulated if it is destined to be burned for energy recovery.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-06. Requirements for recyclable materials~~.~~ and universal waste.

1. The following requirements for recyclable materials are:

   a. Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of subsections 2 and 3, except for the materials listed in subdivisions b and c of subsection 1. Hazardous wastes that are recycled will be known as "recyclable materials".

   b. The following recyclable materials are not subject to the requirements of this section but are regulated under sections 33-24-05-201 through ~~33-24-05-235,~~ 33-24-05-209, 33-24-05-230 through 33-24-05-249, 33-24-05-525 through 33-24-05-549, 33-24-05-600 through 33-24-05-689 and all applicable provisions in chapters 33-24-06 and 33-24-07:

      (1) Recyclable materials used in a manner constituting disposal (sections 33-24-05-201 through 33-24-05-204).

      (2) Hazardous wastes burned for energy recovery in boilers and industrial furnaces that are not regulated under sections 33-24-05-144 through 33-24-05-150.

      (3) Recyclable materials from which precious metals are reclaimed (section 33-24-05-230).

      (4) Spent lead-acid batteries that are being reclaimed (section 33-24-05-235).

   c. The following recyclable materials are not subject to regulation under chapters 33-24-03 through 33-24-07 and are not subject to notification requirements:

      (1) Industrial ethyl alcohol that is reclaimed except that, unless provided otherwise in an international agreement as specified in section 33-24-03-25:

         (a) A person initiating a shipment for reclamation in a foreign country, and any intermediary arranging for the shipment, must comply with the requirements applicable to a primary exporter in section 33-24-03-20, subdivisions a through d and f of subsection 1 and subsection 2 of section 33-24-03-23, and section 33-24-03-24, export such materials only upon consent of the receiving country and in conformance with the environmental protection agency acknowledgment of consent as defined in sections 33-24-03-50 through 33-24-03-59, and provide a copy of the environmental protection agency acknowledgment of consent to the shipment to the transporter transporting the shipment for export.

         (b) Transporters transporting a shipment for export may not accept a shipment if the transporter knows the shipment does not conform to the environmental protection agency acknowledgment of consent, shall ensure that a copy of the environmental

protection agency acknowledgment of consent accompanies the shipment and shall ensure that it is delivered to the facility designated by the person initiating the shipment.

~~(2) Used batteries (or used battery cells) returned to a battery manufacturer for regeneration.~~

(~~3~~2) Used oil that exhibits one or more of the characteristics of hazardous waste, but is recycled in some other manner than being burned for energy recovery.

(4~~3~~) Scrap metal.

(~~5~~4) Fuel produced from the refining of oil-bearing hazardous wastes along with normal process streams at a petroleum refining facility, if such wastes result from normal petroleum refining, production, and transportation practices~~.~~ (this exemption does not apply to fuels produced from oil recovered from oil-bearing hazardous waste, where such recovered oil is already excluded under subdivision 1 of subsection 1 of section 33-24-02-04).

~~(6) Oil reclaimed from hazardous waste resulting from normal petroleum refining, production, and transportation practices, which oil is to be refined along with normal process streams at a petroleum refining facility.~~

(~~7~~5) Subdivision c also applies to the following:

(a) Hazardous waste fuel produced from oil-bearing hazardous wastes from petroleum refining, production, or transportation practices, or produced from oil reclaimed from such hazardous wastes, where such hazardous wastes are reintroduced into a process that does not use distillation or does not produce products from crude oil so long as the resulting fuel meets the used oil specification under section 33-24-05-611 so long as no other hazardous wastes are used to produce the hazardous waste fuel.

(b) Hazardous waste fuel produced from oil-bearing hazardous waste from petroleum refining production, and transportation practices, where such hazardous wastes are reintroduced into a refining process after a point in which contaminates are removed so long as the fuel meets the used oil fuel specification under section 33-24-05-611; and

(c) Oil reclaimed from oil-bearing hazardous wastes from petroleum refining, production, and transportation practices, which reclaimed oil is burned as a fuel without reintroduction to a refining process, so long as the reclaimed oil meets the used oil fuel specification under section 33-24-05-611.

(~~8~~6) Petroleum coke produced from petroleum refinery hazardous wastes containing oil ~~at the same facility at which such wastes were generated~~ by the same person who generated the waste, unless the resulting coke product exceeds one or more of the characteristics of hazardous waste in sections 33-24-02-10 through 33-24-02-14.

d. Used oil that is recycled and is also a hazardous waste solely because it exhibits a hazardous characteristic is not subject to the requirements of chapter 33-24-01 and sections 33-24-05-250 through 33-24-05-290, but

is regulated under sections 33-24-05-600 through 33-24-05-689. Used oil that is recycled includes any used oil which is reused, following its original use, for any purpose (including the purpose for which the oil was originally used). Such term includes oil which is re-refined, reclaimed, burned for energy recovery, or reprocessed.

2. Generators and transporters of recyclable materials are subject to the applicable requirements of chapters 33-24-03 and 33-24-04 and the notification requirements, except as provided in subsection 1.

3. Owners or operators of facilities that:

   a. Store recyclable materials before they are recycled are regulated under all applicable provisions of sections 33-24-05-01 through 33-24-05-143, sections 33-24-05-400 through 33-24-05-449, sections 33-24-05-191 through 33-24-05-399 and chapter 33-24-06 and the notification requirements, except as provided in subsection 1. The recycling process itself is exempt from regulation except as provided in subsection 4 of section 33-24-02-06.

   b. Recycle recyclable materials without storing them before they are recycled are subject to the following requirements, except as provided in subsection 1;

      (1) Notification requirements; and

      (2) Sections 33-24-05-38 and 33-24-05-39 (dealing with the use of the manifest and manifest discrepancies).

      (3) Subsection 4 of section 33-24-02-06.

4. Owners or operators of facilities subject to the hazardous waste permitting requirements with hazardous waste management units that recycle hazardous wastes are subject to the requirements of sections 33-24-05-400 through 33-24-05-449.

5. The wastes listed in this subsection are exempt from regulation under chapters 33-24-03 through 33-24-06 except as specified in sections 33-24-05-701 through 33-24-05-765 and, therefore are not fully regulated as hazardous waste. The wastes listed in this subsection are subject to regulation under sections 33-24-05-701 through 33-24-05-765:

   a. Batteries as described in section 33-24-05-702;

   b. Pesticides as described in section 33-24-05-703; and

   c. Mercury-containing devices as described in section 33-24-05-704.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988, December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-07. Residues of hazardous waste in empty containers.

1. Unless empty as defined in subsections 2, 3, or 4, any hazardous waste in either a container or an inner liner removed from a container is subject to regulation under chapters 33-24-02 through 33-24-07 and to the notification requirements.

2. A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste listed in section 33-24-02-16, 33-24-02-17, or subsection 5 of 33-24-02-18, is empty if:

   a. All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, ~~e.g.,~~ for example, pouring, pumping, and aspirating; and

   b. One of the following:

      (1) No more than two and one-half centimeters [1 inch] of residue remain on the bottom of the container or inner liner;

      (2) No more than three percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to one hundred ten gallons [416.40 liters] in size; or

      (3) No more than three-tenths of one percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than one hundred ten gallons [416.40 liters] in size.

3. A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric levels.

4. A container or an inner liner removed from a container that has held an acute hazardous waste listed in section 33-24-02-16, 33-24-02-17, or subsection 5 of 33-24-02-18 is empty if:

   a. The container or inner liner has been triple-rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

   b. The container or inner liner has been cleaned by another method that has been shown in the scientific literature or by tests conducted by the generator, to achieve equivalent removal; or

   c. In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container has been removed.

History: Effective January 1, 1984; amended effective October 1, 1986; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-08. Criteria for identifying the characteristics of hazardous waste.

1. The department shall identify and define a characteristic of hazardous waste in this chapter only upon determining that:

   a. A solid waste that exhibits the characteristic may:

      (1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(2) Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of, or otherwise managed; and

b. The characteristic can be:

(1) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste; or

(2) Reasonably detected by generators of solid waste through their knowledge of their waste.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-09. Criteria for listing hazardous waste.

1. The department shall list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

a. It exhibits any of the characteristics of hazardous waste identified in this chapter.

b. It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD 50 toxicity (rat) of less than fifty milligrams per kilogram, and inhalation LC 50 toxicity (rat) of less than two milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than two hundred milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. (Waste listed in accordance with these criteria will be designated acute hazardous waste.)

c. It contains any of the toxic constituents listed in appendix V and, after considering the following factors, the department concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed:

(1) The nature of the toxicity presented by the constituent;

(2) The concentration of the constituent in the waste;

(3) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph 7;

(4) The persistence of the constituent or any toxic degradation product of the constituent;

(5) The potential for the constituent or any toxic degradation product of the constituent to degrade into nonharmful constituents and the rate of degradation;

(6) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems;

(7) The plausible types of improper management to which the waste could be subjected;

(8) The quantities of the waste generated at individual generation sites or on a statewide basis;

(9) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent;

(10) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent; and

(11) Such other factors as may be appropriate.

Substances will be listed in appendix V only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on human or other life forms. (Wastes listed in accordance with these criteria will be designated toxic wastes.)

2. The department may list classes or types of solid waste as hazardous wastes if it has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of hazardous waste found in subsection 5 of North Dakota Century Code section 23-20.3-02.

3. The department will use the criteria for listing specified in this section to establish the exclusion limits referred to in subsection 3 of section 33-24-02-05.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-10. General characteristics of hazardous waste.

1. A solid waste, as defined in section 33-24-02-02 which is not excluded from regulation as a hazardous waste under subsection 2 of section 33-24-02-04 is a hazardous waste if it exhibits any of the characteristics identified in this chapter. (Comment: Section 33-24-03-02 sets forth the generator's responsibility to determine whether the generator's waste exhibits one or more of the characteristics identified in this chapter.)

2. A hazardous waste which is identified by a characteristic in this chapter is assigned every hazardous waste number that is applicable as set forth in this chapter. This number must be in compliance with the notification requirements and all applicable recordkeeping and reporting requirements under chapters 33-24-03 through 33-24-06.

3. For purposes of sections 33-24-02-10 through 33-24-02-14, the department will consider a sample obtained using any of the applicable sampling methods specified in appendix I to be a representative sample within the meaning of chapter 33-24-01.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-11. Characteristic of ignitability.

1. A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

   a. It is a liquid, other than an aqueous solution containing less than twenty-four percent alcohol by volume, and has a flashpoint less than sixty degrees Celsius [140 degrees Fahrenheit], as determined by a Penske-Martins Closed Cup Tester, using the test method specified in American Society for Testing and Material Standard D-93-79 or D-93-80, or a Setaflash Closed Cup Tester, using the test method specified in American Society for Testing and Material Standard D-3278-78, or as determined by an equivalent test method approved by the department under procedures set forth in sections 33-24-01-06 and 33-24-01-07.

   b. It is not a liquid and is capable, under standard temperature and pressure of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously that it creates a hazard.

   c. It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the department.

   d. It is an oxidizer as defined in 49 CFR 173.151.

2. A solid waste that exhibits the characteristic of ignitability has the hazardous waste number of D001.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-12. Characteristic of corrosivity.

1. A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

   a. It is aqueous and has a pH less than or equal to two or greater than or equal to twelve and five-tenths, as determined by a pH meter, using ~~either the test method specified in the "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see section 33-24-01-05), or an equivalent test method approved by the department; or~~ method 9040 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05, or an equivalent test method approved by the department; or

   b. It is a liquid and corrodes steel (SAE 1020) at a rate greater than six and thirty-five-hundredths millimeters [0.250 inch] per year at a test temperature of fifty-five degrees Celsius [130 degrees Fahrenheit] as determined by the test method specified in National Association of Corrosion Engineers (NACE) standard TM-01-69 as standardized in ~~Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see section 33-24-01-05), or an equivalent test method approved by the department.~~ "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency

publication SW-846, as incorporated by reference in section 33-24-01-05, or an equivalent test method approved by the department.

2. A solid waste that exhibits the characteristic of corrosivity has the hazardous waste number of D002.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-13. Characteristic of reactivity.

1. A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

   a. It is normally unstable and readily undergoes violent change without detonating.

   b. It reacts violently with water.

   c. It forms potentially explosive mixtures with water.

   d. When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

   e. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between two and twelve and five-tenths, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

   f. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

   g. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

   h. It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

2. A solid waste that exhibits the characteristic of reactivity has the hazardous waste number of D003.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-14. Toxicity characteristic.

1. A solid waste exhibits the characteristic of toxicity if, using the ~~test methods described in appendix II or equivalent methods approved by the department under the procedures set forth in sections 33-24-01-06 and 33-24-01-07, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at a concentration equal to or greater than the respective value given in that table.~~ toxicity characteristic leaching procedure, test method 1311 in "Test Methods for Evaluating Solid Waste,

Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than one-half of one percent filterable ~~solid,~~ solids, the waste itself, after filtering using the methodology outlined in ~~appendix II,~~ method 1311, is considered to be the extract for the purposes of this section.

2. A solid waste that exhibits the characteristic of toxicity has the hazardous waste number specified in table 1 which corresponds to the toxic contaminant causing it to be hazardous.

Table 1. Maximum Concentration of Contaminants for the Toxicity Characteristic

EPA HW No[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/l)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	[4]200.0
D024	m-Cresol	108-39-4	[4]200.0
D025	p-Cresol	106-44-5	[4]200.0
D026	Cresol	.....	[4]200.0
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	[3]0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	[3]0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0

Table 1. Maximum Concentration of Contaminants for the Toxicity Characteristic

EPA HW No[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/l)
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	[3]5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

[1]Hazardous waste number.
[2]Chemical abstracts service number.
[3]Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
[4]If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-15. Lists of hazardous wastes.

1. A solid waste is a hazardous waste if it is listed in sections 33-24-02-15 through 33-24-02-18, unless it has been excluded from these lists under section 33-24-01-06 or 33-24-01-08.

2. The department will indicate its basis for listing the classes or types of wastes listed in this chapter by employing one or more of the following hazard codes:

Waste Type	Waste Hazard Code
Ignitable Waste	(I)
Corrosive Waste	(C)
Reactive Waste	(R)
Toxicity Characteristic Waste	(E)
Acute Hazardous Waste	(H)
Toxic Waste	(T)

Appendix IV identifies the constituent which caused the waste to be listed as a toxicity characteristic waste (E) or toxic wastes (T) in sections 33-24-02-16 and 33-24-02-17.

3. Each hazardous waste listed in this chapter is assigned a hazardous waste number which precedes the name of the waste. The number must be used in complying with the notification requirements and certain recordkeeping and reporting requirements under chapters 33-24-03 through 33-24-06.

4. The following hazardous wastes listed in sections 33-24-02-16 and 33-24-02-17 are subject to the exclusion limits for acutely hazardous wastes established in section 33-24-02-05: hazardous waste numbers F020, F021, F023, F026, and F027.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-16. Hazardous waste from nonspecific sources.

1. The following solid wastes are listed hazardous wastes from nonspecific sources unless they are excluded under sections 33-24-01-06 and 33-24-01-08 and listed in appendix VI.

Hazardous Waste No.	Hazardous Waste	Hazard Code
Generic:		
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)

Hazardous Waste No.	Hazardous Waste	Hazard Code
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003	The following spent nonhalogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above nonhalogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	~~(T)~~ (I)*
F004	The following spent nonhalogenated solvents: cresols and cresylic acid, and nitro-benzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of the above nonhalogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	~~(T)~~* (T)
F005	The following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
~~F019~~	~~Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.~~	~~(T)~~
F007	Spent cyanide plating bath solutions from electroplating operations.	(R, T)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R, T)

Hazardous Waste No.	Hazardous Waste	Hazard Code
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010	Quenching bath residue from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R,T)
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.	(T)
F020	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) or tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)	(H)
F021	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.	(H)
F022	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.	(H)
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)	(H)
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in section 33-24-02-16 or 33-24-02-17.	~~(H)~~ (T)

Hazardous Waste No.	Hazardous Waste	Hazard Code
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	~~(H)~~ (T)
F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(H)
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component).	(H)
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with environmental protection agency hazardous waste Nos. F020, F021, F022, F023, F026 and F027.	(T)
*F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with section 33-24-02-19 or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes ~~(i.e.,~~ for example, F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol, or both.	(T)
*F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol, or both.	(T)
*F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol, or both.	(T)

Hazardous Waste No.	Hazardous Waste	Hazard Code
F037	Petroleum refinery primary oil/water/solids separation sludge - Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from noncontact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in subdivision b of subsection 2 of section 33-24-02-16 (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.	(T)
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge - Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in dissolved air flotation (DAF) units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from noncontact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in subdivision b of subsection 2 of section 33-24-02-16 (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.	(T)
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under sections 33-24-02-15 through 33-24-02-19. (Leachate resulting from the disposal of one or more of the following hazardous wastes and no other hazardous wastes retains its hazardous waste numbers: F020, F021, F022, F026, F027, and/or F028.).	(T)

FOOTNOTE: *(I,T) should be used to specify mixtures containing ignitable and toxic constituents.

~~[1]The F032, F034, and F035 listings are administratively stayed with respect to the process area receiving drippage of these wastes provided persons desiring to continue operating notify the department by August 6, 1991, of their intent to upgrade or install drip pads, and by November 6, 1991, provide evidence to the department that they have adequate financing to pay for drip pad upgrades or installation, as provided in the administrative stay. The stay of the listings will remain in effect until February 6, 1992, for existing drip pads and until May 6, 1992, for new drip pads.~~

2. Listing Specific Definitions:

a. For the purposes of the F037 and F038 listings, oil/water/solids is defined as oil and/or water and/or solids.

b. Aggressive biological treatment units are:

(1) For the purposes of the F037 and F038 listings, aggressive biological treatment units are defined as units which employ one of the following four treatment methods: activated sludge; trickling filter; rotating biological contactor for the continuous accelerated biological oxidation of wastewaters; or high-rate aeration. High-rate aeration is a system of surface impoundments or tanks, in which intense mechanical aeration is used to completely mix the wastes, enhance biological activity; and

(a) The unit employs a minimum of six horsepower per million gallons of treatment volume; and either

(b) The hydraulic retention time of the unit is no longer than five days; or

(c) The hydraulic retention time is no longer than thirty days and the unit does not generate a sludge that is a hazardous waste by the toxicity characteristic.

(2) Generators and treatment, storage, and disposal facilities have the burden of proving that their sludges are exempt from listing as F037 and F038 wastes under this definition. Generators and treatment, storage, and disposal facilities must maintain, in their operating or other onsite records, documents, and data sufficient to prove that:

(a) The unit is an aggressive biological treatment unit as defined in this subsection; and

(b) The sludges sought to be exempted from the definitions of F037 or F038, or both, were actually generated in the aggressive biological treatment unit.

c. Sludges are:

(1) For the purposes of the F037 listing, sludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement.

(2) For the purposes of the F038 listing:

(a) Sludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement; and

(b) Floats are considered to be generated at the moment they are formed in the top of the unit.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-17. **Hazardous waste from specific sources.** The following solid wastes are listed hazardous wastes from specific sources unless they are excluded under sections 33-24-01-06 and 33-24-01-08 and listed in appendix VI.

Industry and Hazardous Waste No.	Hazardous Waste	Hazard Code
Wood Preservation:		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
Inorganic Pigments:		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	(T)
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	(T)
K005	Wastewater treatment sludge from the production of chrome green pigments.	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).	(T)
K007	Wastewater treatment sludge from the production of iron blue pigments.	(T)
K008	Oven residue from the production of chrome oxide green pigments.	(T)
Organic Chemicals:		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	(T)
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(R, T)
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	(R, T)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	(T)
K015	Still bottoms from the distillation of benzyl chloride.	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	(T)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	(T)
K018	Heavy ends from the fractionation column in ethyl chloride production.	(T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(T)
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	(T)
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	(T)

Industry and Hazardous Waste No.	Hazardous Waste	Hazard Code
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	(T)
K026	Stripping still tails from the production of methy ethyl pyridines.	(T)
K027	Centrifuge and distillation residues from toluene diisocyanate production.	(R, T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	(T)
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane.	(T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(T)
K083	Distillation bottoms from aniline production.	(T)
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes.	(T)
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.	(T)
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.	(T)
K095	Distillation bottoms from the production of 1,1,1-trichloroethane.	(T)
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	(T)
K103	Process residues from aniline extraction from the production of aniline.	(T)
K104	Combined wastewater streams generated from nitrobenzene/aniline production.	(T)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(T)
K107	Column bottoms from product separation from the production of 1,1-dimethyl-hydrazine (UDMH) from carboxylic acid hydrazines.	(C,T)
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(I,T)
K109	Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(T)
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(T)
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene.	(C,T)
K112	Reaction byproduct water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)

Industry and Hazardous Waste No.	Hazardous Waste	Hazard Code
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	(T)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	(T)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(T)
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(T)
K149	Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups, (This waste does not include still bottoms from the distillation of benzyl chloride.).	(T)
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	(T)
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	(T)
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes.	(T)
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes.	(T)
K158	Baghouse dusts and filter/separation solids from the production of carbamates and carbamoyl oximes.	(T)
K159	Organics from the treatment of thiocarbamate wastes.	(T)
K160	Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes.	(T)
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts. (This listing does not include K125 or K126.)	(RT)
Inorganic Chemicals:		
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	(T)
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	(T)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production.	(T)
Pesticides:		
K031	Byproduct salts generated in the production of MSMA and cacodylic acid.	(T)
K032	Wastewater treatment sludge from the production of chlordane.	(T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	(T)

Industry and Hazardous Waste No.	Hazardous Waste	Hazard Code
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	(T)
K035	Wastewater treatment sludges generated in the production of creosote.	(T)
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.	(T)
K037	Wastewater treatment sludges from the production of disulfoton.	(T)
K038	Wastewater from the washing and stripping of phorate production.	(T)
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.	(T)
K040	Wastewater treatment sludge from the production of phorate.	(T)
K041	Wastewater treatment sludge from the production of toxaphene.	(T)
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	(T)
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	(T)
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.	(T)
K098	Untreated process wastewater from the production of toxaphene.	(T)
K099	Untreated wastewater from the production of 2,4-D.	(T)
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt.	(T)
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.	(C, T)
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.	(T)
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.	(T)
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.	(C,T)
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide.	(T)
Explosives:		
K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	(R)
K045	Spent carbon from the treatment of wastewater containing explosives.	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.	(T)
K047	Pink/red water from TNT operations.	(R)
Petroleum Refining:		
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.	(T)
K049	Slop oil emulsion solids from the petroleum refining industry.	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	(T)
K051	API separator sludge from the petroleum refining industry.	(T)

Industry and Hazardous Waste No.	Hazardous Waste	Hazard Code
K052	Tank bottoms (leaded) from the petroleum refining industry.	(T)
Iron and Steel:		
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.	(T)
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).	(C,T)
Primary Copper:		
K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production.	(T)
Primary Lead:		
K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.	(T)
Primary Zinc:		
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.	(T)
Primary Aluminum:		
K088	Spent potliners from primary aluminum reduction.	(T)
Ferroalloys:		
K090	Emission control dust or sludge from ferrochromiumsilicon production.	(T)
K091	Emission control dust or sludge from ferrochromium production	(T)
Secondary Lead:		
K069	Emission control dust/sludge from secondary lead smelting. (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action effecting this stay, EPA will publish a notice of the action in the Federal Register).	(T)
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.	(T)
Veterinary Pharmaceuticals:		
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	(T)
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	(T)
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	(T)
Ink Formulation:		

Industry and Hazardous Waste No.	Hazardous Waste	Hazard Code
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	(T)
Coking:		
K060	Ammonia still lime sludge from coking operations.	(T)
K087	Decanter tank tar sludge from coking operations.	(T)
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke byproducts produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations).	(T)
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke byproducts produced from coal.	(T)
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke byproducts produced from coal.	(T)
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke byproducts produced from coal.	(T)
K145	Residues from naphthalene collection and recovery operations from the recovery of coke byproducts produced from coal.	(T)
K147	Tar storage tank residues from coal tar refining.	(T)
K148	Residues from coal tar distillation, including but not limited to, still bottoms.	(T)

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-02-18. Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof. The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded as described in paragraph 1 of subdivision b of subsection 1 of section 33-24-02-02, when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land in lieu of their original intended use or when they are contained in products that are applied to the land in lieu of their original intended use, or when, in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel.

1. Any commercial chemical product, manufacturing chemical intermediate, or any mixture of the chemicals having the generic name listed in subsection 5 or 6.

2. Any off-specification commercial chemical product, manufacturing chemical intermediate, or any mixture of the chemicals which, if it met specifications, would have the generic name listed in subsection 5 or 6.

3. Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product, manufacturing chemical intermediate, or any mixture of the chemicals having the generic name listed in

subsection 5 or 6, unless the container is empty as defined in ~~subdivision c of~~ subsection 2 of section 33-24-02-07.

(NOTE: Unless the residue is being beneficially used or legitimately recycled or reclaimed; or being accumulated, stored, transported or treated prior to such use, reuse, recycling or reclamation, the department considers the residue to be intended for discard, and thus a hazardous waste. An example of a legitimate reuse of the residue would be where the residue remains in the container and the container is used to hold the same commercial chemical product or manufacturing chemical intermediate it previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.)

4. Any residue or contaminated soil, water, or other debris, resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product, manufacturing chemical intermediate, or mixture of the chemicals having the generic name listed in subsection 5 or 6, or any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill into or on any land or water of any off-specification chemical product, manufacturing chemical intermediate, or mixture of the chemicals, which, if it met specifications would have the generic name listed in subsection 5 or 6. (Comment: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in . . ." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use, which consists of the commercially pure grade of the chemical, any technical grades of the chemical, that are produced or marketed, and all formulations containing one or more of the chemicals having the generic name listed in subsection 5 or 6 as active ingredients. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in subsection 5 or 6. Where a manufacturing process is deemed to be a hazardous waste because it contains a substance listed in subsection 5 or 6, such wastes will be listed in either section 33-24-02-16 or 33-24-02-17 or will be identified as a hazardous waste by the characteristic set forth in this chapter.)

5. The commercial chemical products, manufacturing chemical intermediates, off-specification commercial chemical products or manufacturing chemical intermediates, or mixtures of the chemicals referred to in subsections 1 through 4, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in subsection 5 of section 33-24-02-05. These wastes and their corresponding hazardous waste numbers are:

Hazardous Waste No.	Chemical Abstracts No.	Substance
P023	107-20-0	Acetaldehyde, chloro-
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P057	640-19-7	Acetamide, 2-fluoro-
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P002	591-08-2	1-Acetyl-2-thiourea
P003	107-02-8	Acrolein
P203	1646-88-4	Aldicarb sulfone
P070	116-06-3	Aldicarb
P004	309-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol
P008	504-24-5	4-Aminopyridine
P009	131-74-8	Ammonium picrate (R)
P119	7803-55-6	Ammonium vanadate

Hazardous Waste No.	Chemical Abstracts No.	Substance
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778-39-4	Arsenic acid H_3AsO_4
P012	1327-53-3	Arsenic oxide As_2O_3
P011	1303-28-2	Arsenic oxide As_2O_5
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-
P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-,(R)-
P046	122-09-8	Benzeneethanamine, alpha,alpha-dimethyl-
P014	108-98-5	Benzenethiol
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol -5-yl methylcarbamate ester (1:1).
P001	[1]81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium powder
P017	598-31-2	Bromoacetone
P018	357-57-3	Brucine
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[methylamino)carbonyl] oxime
P021	592-01-8	Calcium cyanide
P021	592-01-8	Calcium cyanide $Ca(CN)_2$
P189	55285-14-8	Carbamic acid, [(dibutylamino)- thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester
P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]- 5-methyl-1H-pyrazol-3-yl ester
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1- (1-methylethyl)-1H-pyrazol-5-yl ester
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester
P127	1563-66-2	Carbofuran
P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P189	55285-14-8	Carbosulfan
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P027	542-76-7	3-Chloropropionitrile
P029	544-92-3	Copper cyanide
P029	544-92-3	Copper cyanide Cu(CN)
P202	64-00-6	m-Cumenyl methylcarbamate
P030	.....	Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P033	506-77-4	Cyanogen chloride (CN)Cl
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P016	542-88-1	Dichloromethyl ether
P036	696-28-6	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P038	692-42-2	Diethylarsine
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Diisopropylfluorophosphate (DFP)
P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-,(1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-

Hazardous Waste No.	Chemical Abstracts No.	Substance
P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-,(1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P037	60-57-1	2,7:3,6-Dimethanonaphth[2,3b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-
P051	[1]72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro,(1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-, & metabolites
P044	60-51-5	Dimethoate
P046	122-09-8	alpha, alpha-Dimethylphenethylamine
P191	644-64-4	Dimetilan
P047	[1]534-52-1	4,6-Dinitro-o-cresol and salts
P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosphoramide, octamethyl-
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P039	298-04-4	Disulfoton
P049	541-53-7	Dithiobiuret
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O- [(methylamino)-carbonyl]oxime
P050	115-29-7	Endosulfan
P088	145-73-3	Endothall
P051	72-20-8	Endrin
P051	72-20-8	Endrin, & metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P066	16752-77-5	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-,methyl ester
P194	23135-22-0	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester
P101	107-12-0	Ethyl cyanide
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P198	23422-53-9	Formetanate hydrochloride
P197	17702-57-7	Formparanate
P065	628-86-4	Fulminic acid, mercury(2+)salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyl tetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	60-34-4	Hydrazine, methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P060	465-73-6	Isodrin
P192	119-38-0	Isolan
P202	64-00-6	3-Isopropylphenyl N-methylcarbamate
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339-36-3	Manganese, bis(dimethylcarbamodithioato-S,S')-,
P196	15339-36-3	Manganese dimethyldithiocarbamate
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	628-86-4	Mercury fulminate (R,T)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P064	624-83-9	Methane, isocyanato-
P016	542-88-1	Methane, oxybis[chloro-
P112	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride
P197	17702-57-7	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-

Hazardous Waste No.	Chemical Abstracts No.	Substance
		[[(methylamino)carbonyl]oxy]phenyl]-
P050	115-29-7	6,9-Methano-2,4,3-benxodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P199	2032-65-7	Methiocarb
P066	16752-77-5	Methomyl
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methyllactonitrile
P071	298-00-0	Methyl parathion
P190	1129-41-5	Metolcarb
P128	315-18-4	Mexacarbamate
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl $Ni(CO)_4$, (T-4)-
P074	557-19-7	Nickel cyanide
P074	557-19-7	Nickel cynaide $Ni(CN)_2$
P075	[1]54-11-5	Nicotine and salts
P076	10102-43-9	Nitric oxide
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	10102-43-9	Nitrogen oxide NO
P078	10102-44-0	Nitrogen oxide NO_2
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P085	152-16-9	Octamethylpyrophosphoramide
P087	20816-12-0	Osmium oxide OsO_4, (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135-22-0	Oxamyl
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P048	51-28-5	Phenol, 2,4-dinitro-
P047	[1]534-52-1	Phenol, 2-methyl-4,6-dinitro-, and salts
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl]ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl]ester
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl)ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethylester
P071	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl)ester
P204	57-47-6	Physostigmine
P188	57-64-7	Physostigmine salicylate
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)

Hazardous Waste No.	Chemical Abstracts No.	Substance
P099	506-61-6	Potassium silver cyanide
P201	2631-37-0	Promecarb
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenitrile, 3-chloro-
P069	75-86-5	Propanenitrile, 2-hydroxy-2methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol
P067	75-55-8	1,2-Propylenimine
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	Pyridinamine
P075	[1]54-11-5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S), & salts
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-
P114	12039-52-0	Selenious acid, dithallium(1+) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P106	143-33-9	Sodium cyanide Na(CN)
P108	[1]57-24-9	Strychnidin-10-one, and salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	[1]57-24-9	Strychnine and salts
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Tetranitromethane (R)
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl_2O_3
P114	12039-52-0	Thallium(I) selenite
P115	7446-18-6	Thallium(I) sulfate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P045	39196-18-4	Thiofanox
P049	541-53-7	Thioimidodicarbonic diamide $[(H_2N)C(S)]_2NH$
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-88-4	Thiourea, 1-naphthalenyl-
P093	103-85-5	Thiourea, phenyl-
P185	26419-73-8	Tirpate
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichloromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide ~~V_2O_3~~ V_2O_5
P120	1314-62-1	Vanadium pentoxide
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	[1]81-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S')-,
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide $Zn(CN)_2$
P122	1314-84-7	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10% (R, T)
P205	137-30-4	Ziram.

Hazardous Waste No.	Chemical Abstracts No.	Substance

[1]CAS number given for parent compound only.

6. The commercial chemical products, manufacturing chemical intermediates, off-specification commercial chemical products, or mixtures of the chemicals referred to in subsections 1 through 4, are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in subsections 1 and 7 of section 33-24-02-05.

(Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (toxicity), R (reactivity), I (ignitability), and C (corrosivity). Absence of a letter indicates that the compound is only listed for toxicity.)

These wastes and their corresponding hazardous waste numbers are:

Hazardous Waste No.	Chemical Abstracts No.	Substance
U394	30558-43-1	A2213
U001	75-07-0	Acetaldehyde (I)
U034	75-87-6	Acetaldehyde, trichloro-
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-
U005	53-96-3	Acetamide, N-9H-fluoren-2-yl
U240	[1]94-75-7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters
U112	141-78-6	Acetic acid, ethyl ester (I)
U144	301-04-2	Acetic acid, lead(2+) salt
U214	563-68-8	Acetic acid, thallium (1+) salt
see F027	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U004	98-86-2	Acetophenone
U005	53-96-3	2-Acetylaminofluorene
U006	75-36-5	Acetyl chloride (C,R,T)
U007	79-06-1	Acrylamide
U008	79-10-7	Acrylic acid (I)
U009	107-13-1	Acrylonitrile
U011	61-82-5	Amitrole
U012	62-53-3	Aniline (I,T)
U136	75-60-5	Arsinic acid, dimethyl-
U014	492-80-8	Auramine
U015	115-02-6	Azaserine
U365	2212-67-1	H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester
U010	50-07-7	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-[1aS-(1aalpha, 8beta, 8aalpha, 8balpha)]-
U280	101-27-9	Barban
U278	22781-23-3	Bendiocarb
U364	22961-82-6	Bendiocarb phenol
U271	17804-35-2	Benomyl
U157	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U016	225-51-4	Benz[c]acridine
U017	98-87-3	Benzal chloride
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U018	56-55-3	Benz[a]anthracene
U094	57-97-6	Benz[a]anthracene, 7,12-dimethyl-
U012	62-53-3	Benzenamine (I,T)
U014	492-80-8	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-
U049	3165-93-3	Benzenamine, 4-chloro-2-methyl-, hydrochloride

Hazardous Waste No.	Chemical Abstracts No.	Substance
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	95-53-4	Benzenamine, 2-methyl-
U353	106-49-0	Benzenamine, 4-methyl-
U158	101-14-4	Benzenamine, 4,4'-methylenebis[2-chloro-
U222	636-21-5	Benzenamine, 2-methyl-, hydrochloride
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-
U019	71-43-2	Benzene (I,T)
U038	510-15-6	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-
U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U037	108-90-7	Benzene, chloro-
U221	25376-45-8	Benzenediamine, ar-methyl-
U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
U070	95-50-1	Benzene, 1,2-dichloro-
U071	541-73-1	Benzene, 1,3-dichloro-
U072	106-46-7	Benzene, 1,4-dichloro-
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
U017	98-87-3	Benzene, (dichloromethyl)-
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	1330-20-7	Benzene, dimethyl- (I,T)
U201	108-46-3	1,3-Benzenediol
U127	118-74-1	Benzene, hexachloro-
U056	110-82-7	Benzene, hexahydro- (I)
U220	108-88-3	Benzene, methyl-
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-
U055	98-82-8	Benzene, (1-methylethyl)- (I)
U169	98-95-3	Benzene, nitro-
U183	608-93-5	Benzene, pentachloro-
U185	82-68-8	Benzene, pentachloronitro-
U020	98-09-9	Benzenesulfonic acid chloride (C,R)
U020	98-09-9	Benzenesulfonyl chloride (C,R)
U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-
U023	98-07-7	Benzene, (trichloromethyl)-
U234	99-35-4	Benzene, 1,3,5-trinitro-
U021	92-87-5	Benzidine
U202	[1]81-07-2	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate.
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-.
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
U090	94-58-6	1,3-Benzodioxole, 5-propyl-
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-
U064	189-55-9	Benzo[rst]pentaphene
U248	[1]81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less
U022	50-32-8	Benzo[a]pyrene
U197	106-51-4	p-Benzoquinone
U023	98-07-7	Benzotrichloride (C,R,T)
U085	1464-53-5	2,2'-Bioxirane
U021	92-87-5	[1,1'-Biphenyl]-4,4'-diamine
U073	91-94-1	[1,1'Biphenyl]-4,4'-diamine, 3,3'-dichloro-
U091	119-90-4	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-
U095	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-

Hazardous Waste No.	Chemical Abstracts No.	Substance
U401	97-74-5	Bis(dimethylthiocarbamoyl) sulfide
U400	120-54-7	Bis(pentamethylene)thiuram tetrasulfide
U225	75-25-2	Bromoform
U030	101-55-3	4-Bromophenyl phenyl ether
U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-
U031	71-36-3	1-Butanol (I)
U159	78-93-3	2-Butanone (I,T)
U160	1338-23-4	2-Butanone peroxide (R,T)
U053	4170-30-3	2-Butenal
U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)
U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*), 7aalpha]]-
U031	71-36-3	n-Butyl alcohol (I)
U392	2008-41-5	Butylate
U136	75-60-5	Cacodylic acid
U032	13765-19-0	Calcium chromate
U372	10605-21-7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester
U271	17804-35-2	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester
U375	55406-53-6	Carbamic acid, butyl-, 3-iodo-2-propynyl ester
U280	101-27-9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester
U238	51-79-6	Carbamic acid, ethyl ester
U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester
U373	122-42-9	Carbamic acid, phenyl-, 1-methylethyl ester.
U409	23564-05-8	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester
U097	79-44-7	Carbamic chloride, dimethyl-
U379	136-30-1	Carbamodithioic acid, dibutyl, sodium salt
U277	95-06-7	Carbamodithioic acid, diethyl-, 2-chloro-2-propenyl ester
U381	148-18-5	Carbamodithioic acid, diethyl-, sodium salt
U383	128-03-0	Carbamodithioic acid, dimethyl, potassium salt
U382	128-04-1	Carbamodithioic acid, dimethyl-, sodium salt
U376	144-34-3	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid
U114	[1]111-54-6	Carbamodithioic acid, 1,2-ethanediylbis-, salts and esters
U378	51026-28-9	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt
U384	137-42-8	Carbamodithioic acid, methyl-, monosodium salt
U377	137-41-7	Carbamodithioic acid, methyl,- monopotassium salt
U062	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester
U389	2303-17-5	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester
U392	2008-41-5	Carbamothioic acid, bis(2-methylpropyl)-, S-ethyl ester
U391	1114-71-2	Carbamothioic acid, butylethyl-, S-propyl ester
U386	1134-23-2	Carbamothioic acid, cyclohexylethyl-, S-ethyl ester
U390	759-94-4	Carbamothioic acid, dipropyl-, S-ethyl ester
U387	52888-80-9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester
U385	1929-77-7	Carbamothioic acid, dipropyl-, S-propyl ester
U279	63-25-2	Carbaryl
U372	10605-21-7	Carbendazim
U367	1563-38-8	Carbofuran phenol
U215	6533-73-9	Carbonic acid, dithallium(1+) salt
U033	353-50-4	Carbon difluoride
U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)
U033	353-50-4	Carbon oxyfluoride (R,T)
U211	56-23-5	Carbon tetrachloride
U034	75-87-6	Chloral
U035	305-03-3	Chlorambucil
U036	57-74-9	Chlordane, alpha & gamma isomers

Hazardous Waste No.	Chemical Abstracts No.	Substance
U026	494-03-1	Chlornaphazine
U037	108-90-7	Chlorobenzene
U038	510-15-6	Chlorobenzilate
U039	59-50-7	4-Chloro-m-cresol
U042	110-75-8	2-Chloroethyl vinyl ether
U044	67-66-3	Chloroform
U046	107-30-2	Chloromethyl methyl ether
U047	91-58-7	beta-Chloronaphthalene
U048	95-57-8	o-Chlorophenol
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride
U032	13765-19-0	Chromic acid H_2CrO_4, calcium salt
U050	218-01-9	Chrysene
U393	137-29-1	Copper, bis(dimethylcarbamodithioato-S,S')-,
U393	137-29-1	Copper dimethyldithiocarbamate
U051	.....	Creosote
U052	1319-77-3	Cresol (Cresylic acid)
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Cumene (I)
U246	506-68-3	Cyanogen bromide (CN)Br
U386	1134-23-2	Cycloate
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione
U056	110-82-7	Cyclohexane (I)
U129	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)
U057	108-94-1	Cyclohexanone (I)
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	50-18-0	Cyclophosphamide
U240	[1]94-75-7	2,4-D, salts and esters
U059	20830-81-3	Daunomycin
U366	533-74-4	Dazomet
U060	72-54-8	DDD
U061	50-29-3	DDT
U062	2303-16-4	Diallate
U063	53-70-3	Dibenz[a,h]anthracene
U064	189-55-9	Dibenzo[a,i]pyrene
U066	96-12-8	1,2-Dibromo-3-chloropropane
U069	84-74-2	Dibutyl phthalate
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	p-Dichlorobenzene
U073	91-94-1	3,3'-Dichlorobenzidine
U074	764-41-0	1,4-Dichloro-2-butene (I,T)
U075	75-71-8	Dichlorodifluoromethane
U078	75-35-4	1,1-Dichloroethylene
U079	156-60-5	1,2-Dichloroethylene
U025	111-44-4	Dichloroethyl ether
U027	108-60-1	Dichloroisopropyl ether
U024	111-91-1	Dichloromethoxy ethane
U081	120-83-2	2,4-Dichlorophenol
U082	87-65-0	2,6-Dichlorophenol
U084	542-75-6	1,3-Dichloropropene
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)
U395	5952-26-1	Diethylene glycol, dicarbamate
U108	123-91-1	1,4-Diethyleneoxide
U028	117-81-7	Diethylhexyl phthalate
U086	1615-80-1	N,N'-Diethylhydrazine
U087	3288-58-2	O,O-DiethylS-methyl-dithiophosphate
U088	84-66-2	Diethyl phthalate
U089	56-53-1	Diethylstilbesterol
U090	94-58-6	Dihydrosafrole
U091	119-90-4	3,3'-Dimethoxybenzidine

Hazardous Waste No.	Chemical Abstracts No.	Substance
U092	124-40-3	Dimethylamine (I)
U093	60-11-7	p-Dimethylaminoazobenzene
U094	57-97-6	7,12-Dimethylbenz[a]anthracene
U095	119-93-7	3,3'-Dimethylbenzidine
U096	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U097	79-44-7	Dimethylcarbamoyl chloride
U098	57-14-7	1,1-Dimethylhydrazine
U099	540-73-8	1,2-Dimethylhydrazine
U101	105-67-9	2,4-Dimethylphenol
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Dioxane
U109	122-66-7	1,2-Diphenylhydrazine
U110	142-84-7	Dipropylamine (I)
U111	621-64-7	Di-n-propylnitrosamine
U403	97-77-8	Disulfiram
U041	106-89-8	Epichlorohydrin
U390	759-94-4	EPTC
U001	75-07-0	Ethanal (I)
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U404	121-44-8	Ethanamine, N,N-diethyl-
U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-
U067	106-93-4	Ethane, 1,2-dibromo-
U076	75-34-3	Ethane, 1,1-dichloro-
U077	107-06-2	Ethane, 1,2-dichloro-
U131	67-72-1	Ethane, hexachloro-
U024	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-
U117	60-29-7	Ethane, 1,1'-oxybis- (I)
U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
U184	76-01-7	Ethane, pentachloro-
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-
U218	62-55-5	Ethanethioamide
U226	71-55-6	Ethane, 1,1,1-trichloro-
U227	79-00-5	Ethane, 1,1,2-trichloro-
U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester.
U410	59669-26-0	Ethanimidothioic acid, N,N'- [thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester
U359	110-80-5	Ethanol, 2-ethoxy-
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
U395	5952-26-1	Ethanol, 2,2'-oxybis-, dicarbamate.
U004	98-86-2	Ethanone, 1-phenyl-
U043	75-01-4	Ethene, chloro-
U042	110-75-8	Ethene, (2-chloroethoxy)-
U078	75-35-4	Ethene, 1,1-dichloro-
U079	156-60-5	Ethene, 1,2-dichloro-, (E)-
U210	127-18-4	Ethene, tetrachloro-
U228	79-01-6	Ethene, trichloro-
U112	141-78-6	Ethyl acetate (I)
U113	140-88-5	Ethyl acrylate (I)
U238	51-79-6	Ethyl carbamate (urethane)
U117	60-29-7	Ethyl ether (I)
U114	[1]111-54-6	Ethylenebisdithiocarbamic acid, salts and esters
U067	106-93-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride
U359	110-80-5	Ethylene glycol monoethyl ether
U115	75-21-8	Ethylene oxide (I,T)
U116	96-45-7	Ethylenethiourea

Hazardous Waste No.	Chemical Abstracts No.	Substance
U076	75-34-3	Ethylidene dichloride
U118	97-63-2	Ethyl methacrylate
U119	62-50-0	Ethyl methanesulfonate
U407	14324-55-1	Ethyl Ziram
U396	14484-64-1	Ferbam
U120	206-44-0	Fluoranthene
U122	50-00-0	Formaldehyde
U123	64-18-6	Formic acid (C,T)
U124	110-00-9	Furan (I)
U125	98-01-1	2-Furancarboxaldehyde (I)
U147	108-31-6	2,5-Furandione
U213	109-99-9	Furan, tetrahydro- (I)
U125	98-01-1	Furfural (I)
U124	110-00-9	Furfuran (I)
U206	18883-66-4	Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido)-, D-
U206	18883-66-4	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-
U126	765-34-4	Glycidylaldehyde
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	118-74-1	Hexachlorobenzene
U128	87-68-3	Hexachlorobutadiene
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Hexachloroethane
U132	70-30-4	Hexachlorophene
U243	1888-71-7	Hexachloropropene
U133	302-01-2	Hydrazine (R,T)
U086	1615-80-1	Hydrazine, 1,2-diethyl-
U098	57-14-7	Hydrazine, 1,1-dimethyl-
U099	540-73-8	Hydrazine, 1,2-dimethyl-
U109	122-66-7	Hydrazine, 1,2-diphenyl-
U134	7664-39-3	Hydrofluoric acid (C,T)
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U135	7783-06-4	Hydrogen sulfide H_2S
U096	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U375	55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
U116	96-45-7	2-Imidazolidinethione
U137	193-39-5	Indeno[1,2,3-cd]pyrene
U396	14484-64-1	Iron, tris(dimethylcarbamodithioato-S,S')-,
U190	85-44-9	1,3-Isobenzofurandione
U140	78-83-1	Isobutyl alcohol (I,T)
U141	120-58-1	Isosafrole
U142	143-50-0	Kepone
U143	303-34-4	Lasiocarpine
U144	301-04-2	Lead acetate
U146	1335-32-6	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446-27-7	Lead phosphate
U146	1335-32-6	Lead subacetate
U129	58-89-9	Lindane
U163	70-25-7	MNNG
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U149	109-77-3	Malononitrile
U150	148-82-3	Melphalan
U384	137-42-8	Metam Sodium
U151	7439-97-6	Mercury
U152	126-98-7	Methacrylonitrile (I,T)
U092	124-40-3	Methanamine, N-methyl- (I)
U029	74-83-3	Methane, bromo-
U045	74-87-3	Methane, chloro- (I,T)
U046	107-30-2	Methane, chloromethoxy-
U068	74-95-3	Methane, dibromo-

Hazardous Waste No.	Chemical Abstracts No.	Substance
U080	75-09-2	Methane, dichloro-
U075	75-71-8	Methane, dichlorodifluoro-
U138	74-88-4	Methane, iodo-
U119	62-50-0	Methanesulfonic acid, ethyl ester
U211	56-23-5	Methane, tetrachloro-
U153	74-93-1	Methanethiol (I,T)
U225	75-25-2	Methane, tribromo-
U044	67-66-3	Methane, trichloro-
U121	75-69-4	Methane, trichlorofluoro-
U036	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
U154	67-56-1	Methanol (I)
U155	91-80-5	Methapyrilene
U142	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahyrdo-
U247	72-43-5	Methoxychlor
U154	67-56-1	Methyl alcohol (I)
U029	74-83-9	Methyl bromide
U186	504-60-9	1-Methylbutadiene (I)
U045	74-87-3	Methyl chloride (I,T)
U156	79-22-1	Methyl chlorocarbonate (I,T)
U226	71-55-6	Methyl chloroform
U157	56-49-5	3-Methylcholanthrene
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)
U068	74-95-3	Methylene bromide
U080	75-09-2	Methylene chloride
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U138	74-88-4	Methyl iodide
U161	108-10-1	Methyl isobutyl ketone (I)
U162	80-62-6	Methyl methacrylate (I,T)
U161	108-10-1	4-Methyl-2-pentanone (I)
U164	56-04-2	Methylthiouracil
U010	50-07-7	Mitomycin C
U365	2212-67-1	Molinate
U059	20830-81-3	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-
U167	134-32-7	1-Naphthalenamine
U168	91-59-8	2-Naphthalenamine
U026	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-
U165	91-20-3	Naphthalene
U047	91-58-7	Naphthalene, 2-chloro-
U166	130-15-4	1,4-Naphthalenedione
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'diyl)bis(azo)bis[5-amino-4-hydroxy]-, tetrasodium salt
U279	63-25-2	1-Naphthalenol, methylcarbamate
U166	130-15-4	1,4-Naphthoquinone
U167	134-32-7	alpha-Naphthylamine
U168	91-59-8	beta-Naphthylamine
U217	10102-45-1	Nitric acid, thallium(1+) salt
U169	98-95-3	Nitrobenzene (I,T)
U170	100-02-7	p-Nitrophenol
U171	79-46-9	2-Nitropropane (I,T)
U172	924-16-3	N-Nitrosodi-n-butylamine
U173	1116-54-7	N-Nitrosodiethanolamine
U174	55-18-5	N-Nitrosodiethylamine
U176	759-73-9	N-Nitroso-N-ethylurea
U177	684-93-5	N-Nitroso-N-methylurea
U178	615-53-2	N-Nitroso-N-methylurethane
U179	100-75-4	N-Nitrosopiperidine

Hazardous Waste No.	Chemical Abstracts No.	Substance
U180	930-55-2	N-Nitrosopyrrolidine
U181	99-55-8	5-Nitro-o-toluidine
U193	1120-71-4	1,2-Oxathiolane, 2,2-dioxide
U058	50-18-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide
U115	75-21-8	Oxirane (I,T)
U126	765-34-4	Oxiranecarboxyaldehyde
U041	106-89-8	Oxirane, (chloromethyl)-
U182	123-63-7	Paraldehyde
U391	1114-71-2	Pebulate
U183	608-93-5	Pentachlorobenzene
U184	76-01-7	Pentachloroethane
U185	82-68-8	Pentachloronitrobenzene (PCNB)
See F027	87-86-5	Pentachlorophenol
U161	108-10-1	Pentanol, 4-methyl-
U186	504-60-9	1,3-Pentadiene (I)
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol
U048	95-57-8	Phenol, 2-chloro-
U039	59-50-7	Phenol, 4-chloro-3-methyl-
U081	120-83-2	Phenol, 2,4-dichloro-
U082	87-65-0	Phenol, 2,6-dichloro-
U089	56-53-1	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U101	105-67-9	Phenol, 2,4-dimethyl-
U052	1319-77-3	Phenol, methyl-
U132	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-
U411	114-26-1	Phenol, 2-(1-methylethoxy)-, methylcarbamate
U170	100-02-7	Phenol, 4-nitro-
See F027	87-86-5	Phenol, pentachloro-
See F027	58-90-2	Phenol, 2,3,4,6-tetrachloro-
See F027	95-95-4	Phenol, 2,4,5-trichloro-
See F027	88-06-2	Phenol, 2,4,6-trichloro-
U150	148-82-3	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-
U145	7446-27-7	Phosphoric acid, lead(2+) salt (2:3)
U087	3288-58-2	Phosphorodithioic acid, 0,0-diethyl S-methyl ester
U189	1314-80-3	Phosphorus sulfide (R)
U190	85-44-9	Phthalic anhydride
U191	109-06-8	2-Picoline
U179	100-75-4	Piperidine, 1-nitroso-
U400	120-54-7	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-
U383	128-03-0	Potassium dimethyldithiocarbamate
U378	51026-28-9	Potassium n-hydroxymethyl- n-methyldi-thiocarbamate
U377	137-41-7	Potassium n-methyldithiocarbamate
U192	23950-58-5	Pronamide
U194	107-10-8	1-Propanamine (I,T)
U111	621-64-7	1-Propanamine, N-nitroso-N-propyl-
U110	142-84-7	1-Propanamine, N-propyl- (I)
U066	96-12-8	Propane, 1,2-dibromo-3-chloro-
U083	78-87-5	Propane, 1,2-dichloro-
U149	109-77-3	Propanedinitrile
U171	79-46-9	Propane, 2-nitro- (I,T)
U027	108-60-1	Propane, 2,2'-oxybis[2-chloro-
U193	1120-71-4	1,3-Propane sultone
See F027	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
U235	126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U140	78-83-1	1-Propanol, 2-methyl- (I,T)
U002	67-64-1	2-Propanone (I)
U007	79-06-1	2-Propenamide
U084	542-75-6	1-Propene, 1,3-dichloro-
U243	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	107-13-1	2-Propenenitrile

Hazardous Waste No.	Chemical Abstracts No.	Substance
U152	126-98-7	2-Propenenitrile, 2-methyl- (I,T)
U008	79-10-7	2-Propenoic acid (I)
U113	140-88-5	2-Propenoic acid, ethyl ester (I)
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U373	122-42-9	Propham
U411	114-26-1	Propoxur
U194	107-10-8	n-Propylamine (I,T)
U083	78-87-5	Propylene dichloride
U387	52888-80-9	Prosulfocarb
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110-86-1	Pyridine
U191	109-06-8	Pyridine, 2-methyl-
U237	66-75-1	2,4(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	56-04-2	4-(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	930-55-2	Pyrrolidine, 1-nitroso-
U200	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U202	[1]81-07-2	Saccharin, and salts
U203	94-59-7	Safrole
U204	7783-00-8	Selenious acid
U204	7783-00-8	Selenium dioxide
U205	7488-56-4	Selenium sulfide
U205	7488-56-4	Selenium sulfide SeS_2 (R,T)
U376	144-34-3	Selenium, tetrakis(dimethyldithiocarbamate)
U015	115-02-6	L-Serine, diazoacetate (ester)
See F027	93-72-1	Silvex (2,4,5-TP)
U379	136-30-1	Sodium dibutyldithiocarbamate
U381	148-18-5	Sodium diethyldithiocarbamate
U382	128-04-1	Sodium dimethyldithiocarbamate
U206	18883-66-4	Streptozotocin
U277	95-06-7	Sulfallate
U103	77-78-1	Sulfuric acid, dimethyl ester
U189	1314-80-3	Sulfur phosphide (R)
See F027	93-76-5	2,4,5-T
U402	1634-02-2	Tetrabutylthiuram disulfide
U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U208	630-20-6	1,1,1,2-Tetrachloroethane
U209	79-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Tetrachloroethylene
See F027	58-90-2	2,3,4,6-Tetrachlorophenol
U213	109-99-9	Tetrahydrofuran (I)
U401	97-74-5	Tetramethylthiuram monosulfide
U214	563-68-8	Thallium(I) acetate
U215	6533-73-9	Thallium(I) carbonate
U216	7791-12-0	Thallium(I) chloride
U216	7791-12-0	Thallium chloride Tlcl
U217	10102-45-1	Thallium(I) nitrate
U366	533-74-4	2H-1,3,5-Thiadiazine- 2-thione, tetrahydro-3,5-dimethyl-
U218	62-55-5	Thioacetamide
U410	59669-26-0	Thiodicarb
U153	74-93-1	Thiomethanol (I,T)
U402	1634-02-2	Thioperoxydicarbonic diamide, tetrabutyl
U403	97-77-8	Thioperoxydicarbonic diamide, tetraethyl
U244	137-26-8	Thioperoxydicarbonic diamide $[(H_2N)C(S)]_2S_2$, tetramethyl-
U409	23564-05-8	Thiophanate-methyl
U219	62-56-6	Thiourea
U244	137-26-8	Thiram
U220	108-88-3	Toluene
U221	25376-45-8	Toluenediamine
U223	26471-62-5	Toluene diisocyanate (R,T)

Hazardous Waste No.	Chemical Abstracts No.	Substance
U328	95-53-4	o-Toluidine
U353	106-49-0	p-Toluidine
U222	636-21-5	o-Toluidine hydrochloride
U389	2303-17-5	Triallate
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene
U121	75-69-4	Trichloromonofluoromethane
See F027	95-95-4	2,4,5-Trichlorophenol
See F027	88-06-2	2,4,6-Trichlorophenol
U404	121-44-8	Triethylamine
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)
U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-
U235	126-72-7	Tris (2,3-dibromopropyl) phosphate
U236	72-57-1	Trypan blue
U237	66-75-1	Uracil mustard
U176	759-73-9	Urea, N-ethyl-N-nitroso-
U177	684-93-5	Urea, N-methyl-N-nitroso-
U385	1929-77-7	Vernolate
U043	75-01-4	Vinyl chloride
U248	[1]81-81-2	Warfarin, and salts, when present at concentrations of 0.3% or less
U239	1330-20-7	Xylene (I)
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-
U407	14324-55-1	Zinc, bis(diethylcarbamodithioato-S,S')-
U249	1314-84-7	Zinc phosphide Zn_3P_2, when present at concentrations of 10% or less

[1]CAS number given for parent compound only.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-02-19. Deletion of certain hazardous waste codes following equipment cleaning and replacement.

1. Wastes from wood preserving processes at plants that do not resume or initiate use of chlorophenolic preservatives will not meet the listing definition of F032 once the generator has met all the requirements of subsections 2 and 3. These wastes may, however, continue to meet another hazardous waste listing description or may exhibit one or more of the hazardous waste characteristics.

2. Generators must either clean or replace all process equipment that may have come into contact with chlorophenolic formulations or constituents thereof, including, but not limited to, treatment cylinders, sumps, tanks, piping systems, drip pads, forklifts, and trams, in a manner that minimizes or eliminates the escape of hazardous waste or constituents, leachate, contaminated drippage, or hazardous waste decomposition products to the ground water, surface water, or atmosphere.

   a. Generators shall do one of the following:

      (1) Prepare and follow an equipment cleaning plan and clean equipment in accordance with this section;

(2) Prepare and follow an equipment replacement plan and replace equipment in accordance with this section; or

(3) Document cleaning and replacement in accordance with this section, carried out after termination of use of chlorophenolic preservations.

b. Cleaning requirements.

(1) Prepare and sign a written equipment cleaning plan that describes:

(a) The equipment to be cleaned;

(b) How the equipment will be cleaned;

(c) The solvent to be used in cleaning;

(d) How solvent rinses will be tested; and

(e) How cleaning residues will be disposed.

(2) Equipment must be cleaned as follows:

(a) Remove all visible residues from process equipment;

(b) Rinse process equipment with an appropriate solvent until dioxins and dibenzofurans are not detected in the final solvent rinse.

(3) Analytical requirements.

(a) Rinses must be tested in accordance with SW-846, method 8290.

(b) "Not detected" means at or below the lower method calibration limit (MCL) in method 8290, table 1.

(4) The generator must manage all residues from the cleaning process as F032 waste.

c. Replacement requirements.

(1) Prepare and sign a written equipment replacement plan that describes:

(a) The equipment to be replaced;

(b) How the equipment will be replaced; and

(c) How the equipment will be disposed.

(2) The generator must manage the discarded equipment as F032 waste.

d. Documentation requirements. Document that previous equipment cleaning or replacement, or both, was performed in accordance with this section and occurred after cessation of use of chlorophenolic preservatives.

3. The generator must maintain the following records documenting the cleaning and replacement as part of the facility's operating record:

   a. The name and address of the facility;

   b. Formulations previously used and the date on which their use ceased in each process at the plant;

   c. Formulations currently used in each process at the plant;

   d. The equipment cleaning or replacement plan;

   e. The name and address of any persons who conducted the cleaning and replacement;

   f. The dates on which cleaning and replacement were accomplished;

   g. The dates of sampling and testing;

   h. A description of the sample handling and preparation techniques, including techniques used for extraction, containerization, preservation, and chain-of-custody of the samples;

   i. A description of the tests performed, the date the tests were performed, and the results of the tests;

   j. The name and model numbers of the instruments used in performing the tests;

   k. QA/QC documentation; and

   l. The following statement signed by the generator or his authorized representative: I certify under penalty of law that all process equipment required to be cleaned or replaced under section 33-24-02-19 was cleaned or replaced as represented in the equipment cleaning and replacement plan and accompanying documentation. I am aware that there are significant penalties for providing false information, including the possibility of fine or imprisonment.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-02
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

APPENDIX I
REPRESENTATIVE SAMPLING METHODS

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, will be considered by the agency to be representative of the waste.

Extremely viscous liquid - ASTM Standard D140-70 Crushed or powdered material - ASTM Standard D346-75 Soil or rock-like material - ASTM Standard D420-69 Soil-like material - ASTM Standard D1452-65

Fly Ash-like material - ASTM Standard D2234-76 (ASTM Standards are available from ASTM, 1916 Race Street, Philadelphia, Pennsylvania 19103)

Containerized liquid wastes - "COLIWASA" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods",[1] [1a] United States Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460. (Copies may be obtained from Solid Waste Information, United States Environmental Protection Agency, 26 W. St. Clair Street, Cincinnati, Ohio 45268)

Liquid waste in pits, ponds, lagoons, and similar reservoirs. "Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."[1]

This manual also contains additional information on application of these protocols.

[1a] These methods are also described in "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018, January 1980.

APPENDIX II
METHOD 1311 - TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)

Note: The toxicity characteristic leaching procedure, method 1311, is published in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05.

1.0 Scope and Application

1.1 The Toxicity Characteristic Leaching Procedure is designed to determine the mobility of both organic and inorganic analytes present in liquid, solid, and multiphasic wastes.

1.2 If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the Toxicity Characteristic Leaching Procedure need not be run.

1.3 If an analysis of any one of the liquid fractions of the Toxicity Characteristic Leaching Procedure extract indicates that a regulated compound is present at such high concentrations that, even after accounting for dilution from the other fractions of the extract, the concentration would be equal to or above the regulatory level for that compound, then the waste is hazardous and it is not necessary to analyze the remaining fractions of the extract.

1.4 If an analysis of extract obtained using a bottle extractor shows that the concentration of any regulated volatile analyte equals or exceeds the regulatory level for that compound, then the waste is hazardous and extraction using the Zero-Headspace Extractor (ZHE) is not necessary. However, extract from a bottle extractor cannot be used to demonstrate that the concentration of volatile compounds is below the regulatory level.

2.0 Summary of Method

2.1 For liquid wastes (~~i.e.,~~ for example, those containing less than one-half percent dry solid material), the waste, after filtration through a six-tenths to eight-tenths micrometer glass fiber filter, is defined as the Toxicity Characteristic Leaching Procedure extract.

2.2 For wastes containing greater than or equal to one-half percent solids, the liquid, if any, is separated from the solid phase and stored for later analysis; the particle size of the solid phase is reduced, if necessary. The solid phase is extracted with an amount of extraction fluid equal to twenty times the weight of the solid phase. The extraction fluid employed is a function of the alkalinity of the solid phase of the waste. A special extractor vessel is used when testing for volatile analytes (see Table 1 for a list of volatile compounds). Following extraction, the liquid extract is separated from the solid phase by filtration through a six-tenths to eight tenths micrometers glass fiber filter.

Table 1. Volatile Analytes[1,2]

Compound	CAS No.
Acetone	67-64-1
Benzene	71-43-2
n-Butyl alcohol	71-36-3
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroform	67-66-3
1,2-Dichloroethane	107-06-2
1,1-Dichloroethylene	75-35-4
Ethyl acetate	141-78-6
Ethyl benzene	100-41-4
Ethyl ether	60-29-7
Isobutanol	78-83-1
Methanol	67-56-1
Methylene chloride	75-09-2
Methyl ethyl ketone	78-93-3
Methyl isobutyl ketone	108-10-1
Tetrachloroethylene	127-18-4
Toluene	108-88-3
1,1,1-Trichloroethane	71-55-6
Trichloroethylene	79-01-6
Trichlorofluoromethane	75-69-4
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1
Vinyl chloride	75-01-4
Xylene	1330-20-7

[1]When testing for any or all of these analytes, the Zero-Headspace Extractor vessel shall be used instead of the bottle extractor.

[2]Benzene, carbon tetrachloride, chlorobenzene, chloroform; 1,2-dichlorethane, 1,1-dichloroethylene, methyl ethyl ketone, tetrachloroethylene, trichloroethylene, and vinyl chloride are toxicity characteristic constituents. ~~The liquid extract is separated from the solid phase by filtration through a six-tenths to eight-tenths micrometers glass fiber filter.~~

2.3 If compatible (~~i.e.,~~ for example, multiple phases will not form on combination), the initial liquid phase of the waste is added to the liquid extract, and these are analyzed together. If incompatible, the liquids are analyzed separately and the results are mathematically combined to yield a volume-weighted average concentration.

3.0 Interferences

3.1 Potential interferences that may be encountered during analysis are discussed in the individual analytical methods.

4.0 Apparatus and Materials

4.1 Agitation apparatus: The agitation apparatus must be capable of rotating the extraction vessel in an end-over-end fashion (see Figure 1) at thirty plus or minus two revolutions per minute. Suitable devices known to the department are identified in Table 2.

Figure 1. Rotary Agitation Apparatus

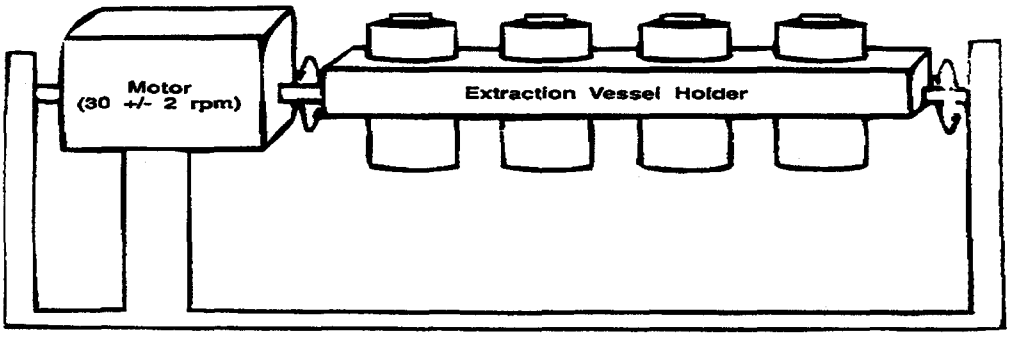


Table 2. Suitable Rotary Agitation Apparatus[1]

Company	Location	Model No.
Analytical Testing and Consulting services, Inc.	Warrington, PA (215) 343-4490	4-vessel (DC20S) 8-vessel (DC20) 12-vessle (DC20B)
Associated Design and Manufacturing Company	Alexandria, VA (703) 549-5999	2-vessel (3740-2) 4-vessel (3740-4) 6-vessel (3740-6) 8-vessel (3740-8) 12-vessel (3740-12) 24-vessel (3740-24)
Environmental Machine and Design, Inc.	Lynchburg, VA (804) 845-6424	8-vessel (08-00-00) 4-vessel (04-00-00)
IRA Machine Shop and Laboratory	Santurce, PR (809) 752-4004	8-vessel (011001)
Lars Lande Manufacturing	Whitmore Lake, MI (313) 449-4116	10-vessel (01VRE) 5-vessel (5VRE)
Millipore Corp.	Bedford, MA (800) 225-3384	4-ZHE or 4 1-liter bottle extractor (YT300RAHW)

[1]Any device that rotates the extraction vessel in an end-over-end fashion at 30 ±2 rpm is acceptable.

4.2 Extraction Vessels:

4.2.1 Zero-Headspace Extraction Vessel (ZHE). This device is for use only when the waste is being tested for the mobility of volatile analytes (~~i.e.,~~ for example, those listed in Table 1). The Zero-Headspace Extractor (depicted in Figure 2) allows for liquid/solid separation within the device, and effectively precludes headspace. This type of vessel allows for initial liquid/solid separation, extraction, and final extract filtration without opening the vessel (see section 4.3.1). The vessels shall have an internal volume of five hundred to six hundred milliliters and be equipped to accommodate a ninety to a one hundred ten millimeters filter. The devices contain VITON (registered trademark of DuPont) O-rings which should be replaced frequently. Suitable Zero-Headspace Extractor devices known to the department are identified in Table 3.

Table 3. Suitable Zero-Headspace Extractor Vessels[1]

Company	Location	Model No.
Analytical Testing & Consulting Services, Inc.	Warrington, PA (215) 343-4490	C102, Mechanical Pressure Device
Associated Design and Manufacturing Company	Alexandria, VA (703) 549-5999	3745-ZHE, Gas Pressure Device
Lars Lande Manufacturing[2]	Whitmore Lake, MI (313) 449-4116	ZHE-11, Gas Pressure Device
Millipore Corporation	Bedford, MA (800) 225-3384	YT30090HW, Gas Pressure Device
Environmental Machine and Design, Inc.	Lynchburg, VA (804) 845-6424	VOLA-TOX1, Gas Pressure Device

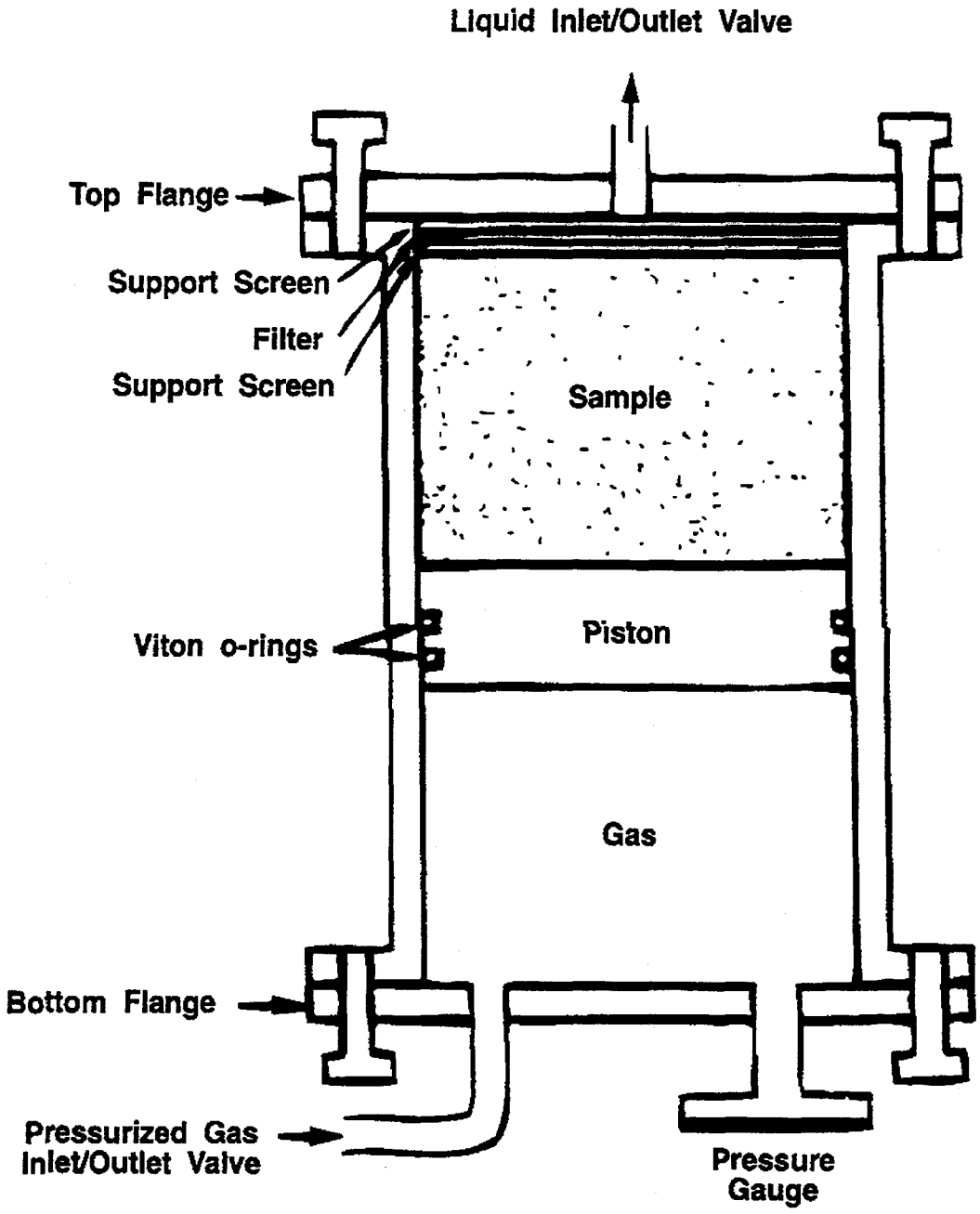
[1]Any device that meets the specifications listed in section 4.2.1 of the method is acceptable.
[2]This device uses a 110 mm filter.

For the Zero-Headspace Extractor to be acceptable for use, the piston within the Zero-Headspace Extractor should be able to be moved with approximately fifteen pounds per square inch (psi) or less. If it takes more pressure to move the piston, the O-rings in the device should be replaced. If this does not solve the problem, the Zero-Headspace Extractor is unacceptable for Toxicity Characteristic Leaching Procedure analyses and the manufacturer should be contacted.

The Zero-Headspace Extractor should be checked for leaks after every extraction. If the device contains a built-in pressure gauge, pressurize the device to fifty pounds per square inch, allow it to stand unattended for one hour, and recheck the pressure. If the device does not have a built-in pressure gauge, pressurize the device to fifty pounds per square inch, submerge it in water, and check for the presence of air bubbles escaping from any of the fittings. If pressure is lost, check all fittings and inspect and replace O-rings, if necessary. Retest the device. If leakage problems cannot be solved, the manufacturer should be contacted.

Some Zero-Headspace Extractors use gas pressure to actuate the Zero-Headspace Extractor piston, while others use mechanical

Figure 2. Zero-Headspace Extractor (ZHE)



pressure (see Table 3). Whereas the volatiles procedure (see section 7.3) refers to pounds per square inch (psi), for the mechanically actuated piston, the pressure applied is measured in ~~torque-inch pounds~~ torque-inch-pounds. Refer to the manufacturer's instructions as to the proper conversion.

4.2.2 Bottle Extraction Vessel. When the waste is being evaluated using the nonvolatile extraction, a jar with sufficient capacity to hold the sample and the extraction fluid is needed. Headspace is allowed in this vessel.

The extraction bottles may be constructed from various materials, depending on the analytes to be analyzed and the nature of the waste (see section 4.3.3). It is recommended that borosilicate glass bottles be used instead of other types of glass, especially when inorganics are of concern. Plastic bottles, other than polytetrafluoroethylene, shall not be used if organics are to be investigated. Bottles are available from a number of laboratory suppliers. When this type of extraction vessel is used, the filtration device discussed in section 4.3.2 is used for initial liquid/solid separation and final extract filtration.

4.3 Filtration Devices: It is recommended that all filtrations be performed in a hood.

4.3.1 Zero-Headspace Extractor Vessel (ZHE): When the waste is evaluated for volatiles, the Zero-Headspace Extraction vessel described in section 4.2.1 is used for filtration. The device shall be capable of supporting and keeping in place the glass fiber filter and be able to withstand the pressure needed to accomplish separation (fifty pounds per square inch).

Note: When it is suspected that the glass fiber filter has been ruptured, an in-line glass fiber filter may be used to filter the material within the Zero-Headspace Extractor.

4.3.2 Filter Holder: When the waste is evaluated for other than volatile analytes, any filter holder capable of supporting a glass fiber filter and able to withstand the pressure needed to accomplish separation may be used. Suitable filter holders range from simple vacuum units to relatively complex systems capable of exerting pressures of up to fifty pounds per square inch or more. The type of filter holder used depends on the properties of the material to be filtered (see section 4.3.3). These devices shall have a minimum internal volume of three hundred milliliters and be equipped to accommodate a minimum filter size of forty-seven millimeters (filter holders having an internal capacity of one and one-half liters or greater and equipped to accommodate a one hundred forty-two millimeters diameter filter are recommended). Vacuum filtration can only be used for wastes with low solids content (less than ten percent) and for highly granular liquid-containing wastes. All other types of wastes should be filtered using positive pressure filtration. Suitable filter holders known to the department are shown in Table 4.

Table 4. Suitable Filter Holders[1]

Company	Location	Model/Catalog No.	Size (μm)
Nucleopore Corporation	Pleasanton, CA (800) 882-7711	425910 401400	142 mm 47 mm
Micro Filtration Systems	Dublin, CA (800) 334-7132 (415) 828-6010	302400 311400	142 mm 47 mm
Millipore Corporation	Bedford, MA (800) 225-3384	YT30142HW XX1004700	142 mm 47 mm

[1]Any device capable of separating the liquid from the solid phase of the waste is suitable, providing that it is chemically compatible with the waste and the constituents to be analyzed. Plastic devices (not listed above) may be used when only inorganic analytes are of concern. The 142 mm size filter holder is recommended.

4.3.3 Materials of Construction: Extraction vessels and filtration devices shall be made of inert materials which will not leach or absorb waste components. Glass, polytetrafluoroethylene (PTFE), or type 316 stainless steel equipment may be used when evaluating the mobility of both organic and inorganic components. Devices made of high-density polyethylene (HDPE), polypropylene (PP), or polyvinyl chloride (PVC) may be used only when evaluating the mobility of metals. Borosilicate glass bottles are recommended for use over other types of glass bottles, especially when inorganics are constituents of concern.

4.4 Filters: Filters shall be made of borosilicate glass fiber, shall contain no binder materials, and shall have an effective pore size of six-tenths to eight-tenths micrometer or equivalent. Filters known to the department which meet these specifications are identified in Table 5. Prefilters must not be used. When evaluating the mobility of metals, filters shall be acid-washed prior to use by rinsing with 1N nitric acid followed by three consecutive rinses with deionized distilled water (a minimum of one liter per rinse is recommended). Glass fiber filters are fragile and should be handled with care.

Table 5. Suitable Filter Media[1]

Company	Location	Model	Pore Size
Millipore Corporation	Bedford, MA (800) 225-3384	AP40	0.7
Nucleopore Corporation	Pleasanton, CA (415) 463-2530	211625	0.7
Whatman Laboratory Products, Inc.	Clifton, NJ (201) 773-5800	GFF	0.7
Micro Filtration Systems	Dublin, CA (800) 334-7132 (415) 828-6010	GF75	0.7

[1]Any filter that meets the specifications in section 4.4 of the method is suitable.

4.5 pH Meters: The meter should be accurate to plus or minus five-hundredths units at twenty-five degrees Celsius.

4.6 Zero-Headspace Extractor Extract Collection Devices: TEDLAR (registered trademark of DuPont) bags or glass, stainless steel or PTFE gastight syringes are used to collect the initial liquid phase and the final extract of the waste when using the Zero-Headspace Extractor device. The devices listed are recommended for use under the following conditions:

4.6.1 If a waste contains an aqueous liquid phase or if a waste does not contain a significant amount of nonaqueous liquid (~~i.e.,~~ for example, less than one percent of total waste), the TEDLAR (registered trademark of DuPont) bag or a six hundred milliliters syringe should be used to collect and combine the initial liquid and solid extract.

4.6.2 If a waste contains a significant amount of nonaqueous liquid in the initial liquid phase (~~i.e.,~~ for example, greater than one percent of total waste), the syringe or the TEDLAR (registered trademark of DuPont) bag may be used for both the initial solid/liquid separation and the final extract filtration. However, analysts should use one or the other, not both.

4.6.3 If the waste contains no initial liquid phase (is one hundred percent solid) or has no significant solid phase (is one hundred percent liquid), either the TEDLAR (registered trademark of DuPont) bag or the syringe may be used. If the syringe is used, discard the first five milliliters of liquid expressed from the device. The remaining aliquots are used for analysis.

4.7 Zero-Headspace Extractor Extraction Fluid Transfer Devices: Any device capable of transferring the extraction fluid into the Zero-Headspace Extractor without changing the nature of the extraction fluid is acceptable (~~e.g.,~~ for example, a positive displacement or peristaltic pump, a gas-tight syringe, pressure filtration unit (see section 4.3.2), or other Zero-Headspace Extractor device).

4.8 Laboratory Balance: Any laboratory balance accurate to within plus or minus one-hundredth grams may be used (all weight measurements are to be within plus or minus one-tenth grams).

4.9 Beaker or Erlenmeyer flask, glass, five hundred milliliters.

4.10 Watchglass, appropriate diameter to cover beaker or Erlenmeyer flask.

4.11 Magnetic stirrer.

5.0 Reagents

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Reagent water. Reagent water is defined as water in which an interferant is not observed at or above the methods detection limit of the analytes of interest. For nonvolatile extractions, ASTM Type II water or equivalent

meets the definition of reagent water. For volatile extractions, it is recommended that reagent water be generated by any of the following methods. Reagent water should be monitored periodically for impurities.

5.2.1 Reagent water for volatile extractions may be generated by passing tap water through a carbon filter bed containing about five hundred grams of activated carbon (Calgon Corp., Filtrasorb-300 or equivalent).

5.2.2 A water purification system (Millipore Super-Q or equivalent) may also be used to generate reagent water for volatile extractions.

5.2.3 Reagent water for volatile extractions may also be prepared by boiling water for fifteen minutes. Subsequently, while maintaining the water temperature at ninety plus five degrees Celsius, bubble a contaminant-free inert gas (~~e.g.,~~ for example, nitrogen) through the water for one hour. While still hot, transfer the water to a narrow mouth screw-cap bottle under zero-headspace and seal with a Teflon-lined septum and cap.

5.3 Hydrochloric acid (1N), HCl, made from ACS reagent grade.

5.4 Nitric acid (1N), HNO_3, made from ACS reagent grade.

5.5 Sodium hydroxide (1N), NaOH, made from ACS reagent grade.

5.6 Glacial acetic acid, CH_3CH_2OOH, ACS reagent grade.

5.7 Extraction fluid.

5.7.1 Extraction fluid #1: Add five and seven-tenths milliliters glacial CH_3CH_2OOH to five hundred milliliters of reagent water (see section 5.2), add sixty-four and three-tenths milliliters of 1N NaOH, and dilute to a volume of one liter. When correctly prepared, the pH of this fluid will be four and ninety-three hundredths plus or minus five hundredths.

5.7.2 Extraction fluid #2: Dilute five and seven-tenths milliliters glacial CH_3CH_2OOH with reagent water (see section 5.2) to a volume of one liter. When correctly prepared, the pH of this fluid will be two and eighty-eight hundredths plus or minus five hundredths.

Note: These extraction fluids should be monitored frequently for impurities. The pH should be checked prior to use to ensure that these fluids are made up accurately. If impurities are found or the pH is not within the above specifications, the fluid shall be discarded and fresh extraction fluid prepared.

5.8 Analytical standards prepared according to the appropriate analytical method.

6.0 Sample Collection, Preservation, and Handling

6.1 All samples shall be collected using an appropriate sampling plan.

6.2 The Toxicity Characteristic Leaching Procedure may place requirements on the minimal size of the field sample, depending upon the physical state or states of the waste and the analytes of concern. An aliquot is needed for preliminary evaluation of which extraction fluid is to be used for the nonvolatile analyte extraction procedure. Another aliquot may be needed to

actually conduct the nonvolatile extraction (see section 1.4 concerning the use of this extract for volatile organics). If volatile organics are of concern, another aliquot may be needed. Quality control measures may require additional aliquots. Further, it is always wise to collect more samples just in case something goes wrong with the initial attempt to conduct the test.

6.3 Preservatives shall not be added to samples before extraction.

6.4 Samples may be refrigerated unless refrigeration results in irreversible physical change to the waste. If precipitation occurs, the entire sample (including precipitate) should be extracted.

6.5 When the waste is to be evaluated for volatile analytes, care shall be taken to minimize the loss of volatiles. Samples shall be collected and stored in a manner intended to prevent the loss of volatile analytes (~~e.g.,~~ for example, samples should be collected in Teflon-lined septum capped vials and stored at four degrees Celsius. Samples should be opened only immediately prior to extraction).

6.6 Toxicity Characteristic Leaching Procedure extracts should be prepared for analysis and analyzed as soon as possible following extraction. Extracts or portions of extracts for metallic analyte determinations must be acidified with nitric acid to a pH less than two, unless precipitation occurs (see section 7.2.14 if precipitation occurs). Extracts should be preserved for other analytes according to the guidance given in the individual analysis methods. Extracts or portions of extracts for organic analyte determinations shall not be allowed to come into contact with the atmosphere (~~i.e.,~~ for example, no headspace) to prevent losses. See section 8.0 (quality assurance requirements) for acceptable sample and extract holding times.

7.0 Procedure

7.1 Preliminary Evaluations. Perform preliminary Toxicity Characteristic Leaching Procedure evaluations on a minimum one hundred gram aliquot of waste. This aliquot may not actually undergo Toxicity Characteristic Leaching Procedure extraction. These preliminary evaluations include: (1) determination of the percent solids (section 7.1.1); (2) determination of whether the waste contains insignificant solids and is, therefore, its own extract after filtration (section 7.1.2); (3) determination of whether the solid portion of the waste requires particle size reduction (section 7.1.3); and (4) determination of which of the two extraction fluids are to be used for the nonvolatile Toxicity Characteristic Leaching Procedure extraction of the waste (section 7.1.4).

7.1.1 Preliminary determination of percent solids: percent solids is defined as that fraction of a waste sample (as a percentage of the total sample) from which no liquid may be forced out by an applied pressure, as described below.

7.1.1.1 If the waste will obviously yield no free liquid when subjected to pressure filtration (~~i.e.,~~ for example, is one hundred percent solids) proceed to section 7.1.3.

7.1.1.2 If the sample is liquid or multiphasic, liquid/solid separation to make a preliminary determination of percent solids is required. This involves the filtration device described in section 4.3.2 and is outlined in sections 7.1.1.3 through 7.1.1.9.

7.1.1.3 Preweigh the filter and the container that will receive the filtrate.

7.1.1.4 Assemble the filter holder and filter following the manufacturer's instructions. Place the filter on the support screen and secure.

7.1.1.5 Weigh out a subsample of the waste (one hundred gram minimum) and record the weight.

7.1.1.6 Allow slurries to stand to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration. Centrifugation is to be used only as an aid to filtration. If used, the liquid should be decanted and filtered followed by filtration of the solid portion of the waste through the same filtration system.

7.1.1.7 Quantitatively transfer the waste sample to the filter holder (liquid and solid phases). Spread the waste sample evenly over the surface of the filter. If filtration of the waste at four degrees Celsius reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering.

Note: If waste material (greater than one percent of original sample weight) has obviously adhered to the container used to transfer the sample to the filtration apparatus, determine the weight of this residue and subtract it from the sample weight determined in section 7.1.1.5 to determine the weight of the waste sample that will be filtered.

Gradually apply vacuum or gentle pressure of one to ten pounds per square inch, until air or pressurizing gas moves through the filter. If this point is not reached under ten pounds per square inch, and if no additional liquid has passed through the filter in any two-minute interval, slowly increase the pressure in ten pounds per square inch increments to a maximum of fifty pounds per square inch. After each incremental increase of ten pounds per square inch, if the pressurizing gas has not moved through the filter, and if no additional liquid has passed through the filter in any two-minute interval, proceed to the next ten pounds per square inch increment. When the pressurizing gas begins to move through the filter, or when liquid flow has ceased at fifty pounds per square inch (~~i.e.,~~ for example filtration does not result in any additional filtrate within any two-minute period), stop the filtration.

Note: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

7.1.1.8 The material in the filter holder is defined as the solid phase of the waste, and the filtrate is defined as the liquid phase.

Note: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. Even after applying vacuum or pressure filtration, as outlined in section 7.1.1.7, this material may not filter. If this is the case, the material within the filtration device is defined as a solid. Do not replace the original filter with a fresh filter under any circumstances. Use only one filter.

7.1.1.9 Determine the weight of the liquid phase by subtracting the weight of the filtrate container (see section 7.1.1.3) from the total weight of the filtrate-filled container. Determine the weight of the solid phase of the waste sample by subtracting the weight of the liquid phase from the weight of the total waste sample, as determined in section 7.1.1.5 or 7.1.1.7.

Record the weight of the liquid and solid phases. Calculate the percent solids as follows:

$$\% \text{ solids} = \frac{\text{Weight of solid (section 7.1.1.9)}}{\text{Total weight of waste (section 7.1.1.5 or 7.1.1.7)}} \times 100$$

7.1.2 If the percent solids determined in section 7.1.1.9 is equal to or greater than one-half percent, then proceed either to section 7.1.3 to determine whether the solid material requires particle size reduction or to section 7.1.2.1 if it is noticed that a small amount of the filtrate is entrained in wetting of the filter. If the percent solids determined in section 7.1.1.9 is less than one-half percent, then proceed to section 7.2.9 if the nonvolatile Toxicity Characteristic Leaching Procedure is to be performed and to section 7.3 with a fresh portion of the waste if the volatile Toxicity Characteristic Leaching Procedure is to be performed.

7.1.2.1 Remove the solid phase and filter from the filtration apparatus.

7.1.2.2 Dry the filter and solid phase at one hundred plus or minus twenty degrees Celsius until two successive weighings yield the same value within plus or minus one percent. Record the final weight.

Note: Caution should be taken to ensure that the subject solid will not flash upon heating. It is recommended that the drying oven be vented to a hood or other appropriate device.

7.1.2.3 Calculate the percent dry solids as follows:

$$\% \text{ dry solids} = \frac{\text{(Weight of dry waste + filter) - tared weight of filter}}{\text{Initial weight of waste (section 7.1.1.5 or 7.1.1.7)}} \times 100$$

7.1.2.4 If the percent dry solids is less than one-half percent, then proceed to section 7.2.9 if the nonvolatile Toxicity Characteristic Leaching Procedure is to be performed, and to section 7.3 if the volatile Toxicity Characteristic Leaching Procedure is to be performed. If the percent dry solids is greater than

or equal to one-half percent, and if the nonvolatile Toxicity Characteristic Leaching Procedure is to be performed, return to the beginning of this section (7.1) and, with a fresh portion of waste, determine whether particle size reduction is necessary (section 7.1.3) and determine the appropriate extraction fluid (section 7.1.4). If only the volatile Toxicity Characteristic Leaching Procedure is to be performed, see the note in section 7.1.4.

7.1.3 Determination of whether the waste requires particle size reduction (particle size is reduced during this step): using the solid portion of the waste, evaluate the solid for particle size. Particle size reduction is required, unless the solid has a surface area per gram of material equal to or greater than three and one-tenth square centimeters, or is smaller than one centimeter in its narrowest dimension (~~i.e.,~~ for example, is capable of passing through a nine and one-half millimeter (three hundred seventy-five thousandths of an inch) standard sieve). If the surface area is smaller or the particle size larger than described above, prepare the solid portion of the waste for extraction by crushing, cutting, or grinding the waste to a surface area or particle size as described above. If the solids are prepared for organic volatiles extraction, special precautions must be taken (see section 7.3.6).

Note: Surface area criteria are meant for filamentous (~~i.e.,~~ for example, paper, cloth) and similar~~)~~ waste materials. Actual measurement of surface area is not required, nor is it recommended. For materials that do not obviously meet the criteria, sample-specific methods would need to be developed and employed to measure the surface area. Such methodology is currently not available.

7.1.4 Determination of appropriate extraction fluid: If the solid content of the waste is greater than or equal to one-half percent and if the sample will be extracted for nonvolatile constituents (section 7.2), determine of the appropriate fluid (section 5.7) for the nonvolatiles extraction as follows:

Note: Toxicity Characteristic Leaching Procedure extraction for volatile constituents uses only extraction fluid #1 (section 5.7.1). Therefore, if Toxicity Characteristic Leaching Procedure extraction for nonvolatiles is not required, proceed to section 7.3.

7.1.4.1 Weigh out a small subsample of the solid phase of the waste, reduce the solid (if necessary) to a particle size of approximately one millimeter in diameter or less, and transfer five grams of the solid phase of the waste to a five hundred milliliters beaker or Erlenmeyer flask.

7.1.4.2 Add ninety-six and one-half milliliters of reagent water to the beaker, cover with a watchglass, and stir vigorously for five minutes using a magnetic stirrer.

Measure and record the pH. If the pH is less than five, use extraction fluid #1. Proceed to section 7.2.

7.1.4.3 If the pH from section 7.1.4.2 is greater than five, add three and one-half milliliters 1N HCl, slurry briefly, cover with a watchglass, heat to fifty degrees Celsius, and hold at fifty degrees Celsius for ten minutes.

7.1.4.4 Let the solution cool to room temperature and record the pH. If the pH is less than five, use extraction fluid #1. If the pH is greater than five, use extraction fluid #2. Proceed to section 7.2.

7.1.5 If the aliquot of the waste used for the preliminary evaluation (sections 7.1.1-7.1.4) was determined to be one hundred percent solid at section 7.1.1.1, then it can be used for the section 7.2 extraction (assuming at least one hundred grams remain), and the section 7.3 extraction (assuming at least twenty-five grams remain). If the aliquot was subjected to the procedure in section 7.1.1.7, then another aliquot shall be used for the volatile extraction procedure in section 7.3. The aliquot of the waste subjected to the procedure in section 7.1.1.7 might be appropriate for use for the section 7.2 extraction if an adequate amount of solid (as determined by section 7.1.1.9) was obtained. The amount of solid necessary is dependent upon whether a sufficient amount of extract will be produced to support the analyses. If an adequate amount of solid remains, proceed to section 7.2.10 of the nonvolatile Toxicity Characteristic Leaching Procedure extraction.

7.2 Procedure When Volatiles Are Not Involved. A minimum sample size of one hundred grams (solid and liquid phases) is recommended. In some cases, a larger sample size may be appropriate, depending on the solids content of the waste sample (percent solids, see section 7.1.1), whether the initial liquid phase of the waste will be miscible with the aqueous extract of the solid, and whether inorganics, semivolatile organics, pesticides, and herbicides are all analytes of concern. Enough solids should be generated for extraction such that the volume of Toxicity Characteristic Leaching Procedure extract will be sufficient to support all of the analyses required. If the amount of extract generated by a single Toxicity Characteristic Leaching Procedure extraction will not be sufficient to perform all of the analyses, more than one extraction may be performed and the extracts from each combined and aliquoted for analysis.

7.2.1 If the waste will obviously yield no liquid when subjected to pressure filtration (~~i.e.,~~ for example, is one hundred percent solid, see section 7.1.1), weigh out a subsample of the waste (one hundred gram minimum) and proceed to section 7.2.9.

7.2.2 If the sample is liquid or multiphasic, liquid/solid separation is required. This involves the filtration device described in section 4.3.2 and is outlined in sections 7.2.3 to 7.2.8.

7.2.3 Preweigh the container that will receive the filtrate.

7.2.4 Assemble the filter holder and filter following the manufacturer's instructions. Place the filter on the support screen and secure. Acid-wash the filter if evaluating the mobility of metals (see section 4.4).

Note: Acid-washed filters may be used for all nonvolatile extractions even when metals are not of concern.

7.2.5 Weigh out a subsample of the waste (one hundred gram minimum) and record the weight. If the waste contains less than one-half percent dry solids (section 7.1.2), the liquid portion of the waste, after filtration, is defined as the Toxicity Characteristic Leaching Procedure extract. Therefore, enough of the sample should be filtered so that the amount of filtered liquid will support all of the analyses required of the Toxicity Characteristic Leaching Procedure extract. For wastes containing greater than one-half percent dry solids (section 7.1.1 or 7.1.2), use the percent solids information obtained in section 7.1.1 to determine the optimum sample size (one hundred gram minimum) for filtration. Enough solids should be generated by filtration to support the analyses to be performed on the Toxicity Characteristic Leaching Procedure extract.

7.2.6 Allow slurries to stand to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration. Use centrifugation only as an aid to filtration. If the waste is centrifuged, the liquid should be decanted and filtered followed by filtration of the solid portion of the waste through the same filtration system.

7.2.7 Quantitatively transfer the waste sample (liquid and solid phases) to the filter holder (see section 4.3.2). Spread the waste sample evenly over the surface of the filter. If filtration of the waste at four degrees Celsius reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering.

Note: If the waste material (greater than one percent of the original sample weight) has obviously adhered to the container used to transfer the sample to the filtration apparatus, determine the weight of this residue and subtract it from the sample weight determined in section 7.2.5 to determine the weight of the waste sample that will be filtered.

Gradually apply vacuum or gentle pressure of one to ten pounds per square inch, until air or pressurizing gas moves through the filter. If this point is not reached under ten pounds per square inch, and if no additional liquid has passed through the filter in any two-minute interval, slowly increase the pressure in ten pounds per square inch increments to a maximum of fifty pounds per square inch. After each incremental increase of ten pounds per square inch, if the pressurizing gas has not moved through the filter, and if no additional liquid has passed through the filter in any two-minute interval, proceed to the next ten pounds per square inch increment. When the pressurizing gas begins to move through the filter, or when the liquid flow has ceased at fifty pounds per square inch (~~i.e.,~~ for example, filtration does not result in any additional filtrate within a two-minute period), stop the filtration.

Note: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

7.2.8 The material in the filter holder is defined as the solid phase of the waste, and the filtrate is defined as the liquid phase. Weigh

the filtrate. The liquid phase may now be either analyzed (see section 7.2.12) or stored at four degrees Celsius until time of analysis.

Note: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. Even after applying vacuum or pressure filtration, as outlined in section 7.2.7, this material may not filter. If this is the case, the material within the filtration device is defined as a solid and is carried through the extraction as a solid. Do not replace the original filter with a fresh filter under any circumstances. Use only one filter.

7.2.9 If the waste contains less than one-half percent dry solids (see section 7.1.2), proceed to section 7.2.13. If the waste contains greater than one-half percent dry solids (see section 7.1.1 or 7.1.2), and if particle size reduction of the solid was needed in section 7.1.3, proceed to section 7.2.10. If the waste as received passes a nine and one-half millimeters sieve, quantitatively transfer the solid material into the extractor bottle along with the filter used to separate the initial liquid from the solid phase, and proceed to section 7.2.11.

7.2.10 Prepare the solid portion of the waste for extraction by crushing, cutting, or grinding the waste to a surface area or particle size as described in section 7.1.3. When the surface area or particle size has been appropriately altered, quantitatively transfer the solid material into an extractor bottle. Include the filter used to separate the initial liquid from the solid phase.

Note: Sieving of the waste is not normally required. Surface area requirements are meant for filamentous (~~e.g.,~~ for example, paper, cloth) and similar waste materials. Actual measurement of surface area is not recommended. If sieving is necessary, a Teflon-coated sieve should be used to avoid contamination of the sample.

7.2.11 Determine the amount of extraction fluid to add to the extractor vessel as follows:

$$\text{Weight of extraction fluid} = \frac{20 \times \%\ \text{solids (sec 7.1.1)} \times \text{weight of waste filtered (sec 7.2.5 or 7.2.7)}}{100}$$

Slowly add this amount of appropriate extraction fluid (see section 7.1.4) to the extractor vessel. Close the extractor bottle tightly (it is recommended that Teflon tape be used to ensure a tight seal), secure in rotary agitation device, and rotate at thirty plus or minus two revolutions per minute for eighteen plus or minus two hours. Ambient temperature (~~i.e.,~~ for example, temperature of room in which extraction takes place) shall be maintained at twenty-three plus or minus two degrees Celsius during the extraction period.

Note: As agitation continues, pressure may build up within the extractor bottle for some types of wastes (~~e.g.,~~ for example, limed or calcium carbonate containing waste may evolve gases such as carbon dioxide). To relieve excess pressure, the extractor bottle may be

periodically opened (~~e.g.,~~ for example, after fifteen minutes, thirty minutes, and one hour) and vented into a hood.

7.2.12 Following the eighteen plus or minus two hour extraction, separate the material in the extractor vessel into its component liquid and solid phases by filtering through a new glass fiber filter, as outlined in section 7.2.7. For final filtration of the Toxicity Characteristic Leaching Procedure extract, the glass fiber filter may be changed, if necessary, to facilitate filtration. Filters shall be acid-washed (see section 4.4) if evaluating the mobility of metals.

7.2.13 Prepare the Toxicity Characteristic Leaching Procedure extract as follows:

7.2.13.1 If the waste contained no initial liquid phase, the filtered liquid material obtained from section 7.2.12 is defined as the Toxicity Characteristic Leaching Procedure extract. Proceed to section 7.2.14.

7.2.13.2 If compatible (~~e.g.,~~ for example, multiple phases will not result on combination), combine the filtered liquid resulting from section 7.2.12 with the initial liquid phase of the waste obtained in section 7.2.7. This combined liquid is defined as the Toxicity Characteristic Leaching Procedure extract. Proceed to section 7.2.14.

7.2.13.3 If the initial liquid phase of the waste, as obtained from section 7.2.7, is not or may not be compatible with the filtered liquid resulting from section 7.2.12, do not combine these liquids. Analyze these liquids, collectively defined as the Toxicity Characteristic Leaching Procedure extract, and combine the results mathematically, as described in section 7.2.14.

7.2.14 Following collection of the Toxicity Characteristic Leaching Procedure extract, the pH of the extract should be recorded. Immediately aliquot and preserve the extract for analysis. Metals aliquots must be acidified with nitric acid to pH less than two. If precipitation is observed upon addition of nitric acid to a small aliquot of the extract, then the remaining portion of the extract for metals analyses shall not be acidified and the extract shall be analyzed as soon as possible. All other aliquots must be stored under refrigeration (four degrees Celsius) until analyzed. The Toxicity Characteristic Leaching Procedure extract shall be prepared and analyzed according to appropriate analytical methods. Toxicity Characteristic Leaching Procedure extracts to be analyzed for metals shall be acid digested except in those instances where digestion causes loss of metallic analytes. If an analysis of the undigested extract shows that the concentration of any regulated metallic analyte exceeds the regulatory level, then the waste is hazardous and digestion of the extract is not necessary. However, data on undigested extracts alone cannot be used to demonstrate that the waste is not hazardous. If the individual phases are to be analyzed separately, determine the volume of the individual phases (to plus or minus one-half percent), conduct the appropriate analyses, and combine the results mathematically by using a simple volume-weighted average:

$$\text{Final analyte concentration} = \frac{(V_1)(C_1) + (V_2)(C_2)}{V_1 + V_2}$$

where:
V_1= The volume of the first phase (l).
C_1= The concentration of the analyte of concern in the first phase (mg/l).
V_2= The volume of the second phase (l).
C_2= The concentration of the analyte of concern in the second phase (mg/l).

7.2.15 Compare the analyte concentrations in the Toxicity Characteristic Leaching Procedure extract with the levels identified in the appropriate regulations. Refer to section 8.0 for quality assurance requirements.

7.3 Procedure When Volatiles Are Involved. Use the Zero-Headspace Extractor device to obtain Toxicity Characteristic Leaching Procedure extract for analysis of volatile compounds only. Extract resulting from the use of the Zero-Headspace Extractor shall not be used to evaluate the mobility of nonvolatile analytes (~~e.g.,~~ for example, metals, pesticides, etc.).

The Zero-Headspace Extractor device has approximately a five hundred milliliters internal capacity. The Zero-Headspace Extractor can thus accommodate a maximum of twenty-five grams of solid (defined as that fraction of a sample from which no additional liquid may be forced out by an applied pressure of fifty pounds per square inch), due to the need to add an amount of extraction fluid equal to twenty times the weight of the solid phase.

Charge the Zero-Headspace Extractor with sample only once and do not open the device until the final extract (of the solid) has been collected. Repeated filling of the Zero-Headspace Extractor to obtain twenty-five grams of solid is not permitted.

Do not allow the waste, the initial liquid phase, or the extract to be exposed to the atmosphere for any more time than is absolutely necessary. Any manipulation of these materials should be done when cold (four degrees Celsius) to minimize loss of volatiles.

7.3.1 Preweigh the (evacuated) filtrate collection container (see section 4.6) and set aside. If using a TEDLAR (registered trademark of DuPont) bag, express all liquid from the Zero-Headspace Extractor device into the bag, whether for the initial or final liquid/solid separation, and take an aliquot from the liquid in the bag for analysis. The containers listed in section 4.6 are recommended for use under the conditions stated in 4.6.1-4.6.3.

7.3.2 Place the Zero-Headspace Extractor piston within the body of the Zero-Headspace Extractor (it may be helpful first to moisten the piston O-rings slightly with extraction fluid). Adjust the piston within the Zero-Headspace Extractor body to a height that will minimize the distance the piston will have to move once the Zero-Headspace Extractor is charged with sample (based upon sample size requirements determined from section 7.3, section 7.1.1 or section 7.1.2, or both). Secure the gas inlet/outlet flange (bottom flange) onto the Zero-Headspace Extractor body in accordance with

the manufacturer's instructions. Secure the glass fiber filter between the support screens and set aside. Set liquid inlet/outlet flange (top flange) aside.

7.3.3 If the waste is one hundred percent solid (see section 7.1.1), weigh out a subsample (twenty-five gram maximum) of the waste, record weight, and proceed to section 7.3.5.

7.3.4 If the waste contains less than one-half percent dry solids (section 7.1.2), the liquid portion of waste, after filtration, is defined as the Toxicity Characteristic Leaching Procedure extract. Filter enough of the sample so that the amount of filtered liquid will support all of the volatile analyses required. For wastes containing greater than one-half percent dry solids (sections 7.1.1 or section 7.1.2, or both), use the percent solids information obtained in section 7.1.1 to determine the optimum sample size to charge into the Zero-Headspace Extractor. The recommended sample size is as follows:

7.3.4.1 For wastes containing less than ~~one-half~~ five percent solids (see section 7.1.1), weigh out a five hundred gram subsample of waste and record the weight.

7.3.4.2 For wastes containing greater than ~~one-half~~ five percent solids (see section 7.1.1), determine the amount of waste to charge into the Zero-Headspace Extractor as follows:

$$\text{Weight of waste to change ZHE} = \frac{25}{\text{Percent solids (section 7.1)}} \times 100$$

Weigh out a subsample of the waste of the appropriate size and record the weight.

7.3.5 If particle size reduction of the solid portion of the waste was required in section 7.1.3, proceed to section 7.3.6. If particle size reduction was not required in section 7.1.3, proceed to section 7.3.7.

7.3.6 Prepare the waste for extraction by crushing, cutting, or grinding the solid portion of the waste to a surface area or particle size as described in section 7.1.3.1. Wastes and appropriate reduction equipment should be refrigerated, if possible, to four degrees Celsius prior to particle size reduction. The means used to effect particle size reduction must not generate heat in and of itself. If reduction of the solid phase of the waste is necessary, exposure of the waste to the atmosphere should be avoided to the extent possible.

Note: Sieving of the waste is not recommended due to the possibility that volatiles may be lost. The use of an appropriately graduated ruler is recommended as an acceptable alternative. Surface area requirements are meant for filamentous (~~e.g.,~~ for example, paper, cloth) and similar waste materials. Actual measurement of surface area is not recommended.

When the surface area or particle size has been appropriately altered, proceed to section 7.3.7.

7.3.7 Waste slurries need not be allowed to stand to permit the solid phase to settle. Do not centrifuge wastes prior to filtration.

7.3.8 Quantitatively transfer the entire sample (liquid and solid phases) quickly to the Zero-Headspace Extractor. Secure the filter and support screens onto the top flange of the device and secure the top flange to the Zero-Headspace Extractor body in accordance with the manufacturer's instructions. Tighten all Zero-Headspace Extractor fittings and place the device in the vertical position (gas inlet/outlet flange on the bottom). Do not attach the extract collection device to the top plate.

Note: If waste material (greater than one percent of original sample weight) has obviously adhered to the container used to transfer the sample to the Zero-Headspace Extractor, determine the weight of this residue and subtract it from the sample weight determined in section 7.3.4 to determine the weight of the waste sample that will be filtered.

Attach a gas line to the gas inlet/outlet valve (bottom flange) and, with the liquid inlet/outlet valve (top flange) open, begin applying gentle pressure of one to ten pounds per square inch (or more if necessary) to force all headspace slowly out of the Zero-Headspace Extractor device into a hood. At the first appearance of liquid from the liquid inlet/outlet valve, quickly close the valve and discontinue pressure. If filtration of the waste at four degrees Celsius reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering. If the waste is one hundred percent solid (see section 7.1.1), slowly increase the pressure to a maximum of fifty pounds per square inch to force most of the headspace out of the device and proceed to section 7.3.12.

7.3.9 Attach the evacuated pre-weighed filtrate collection container to the liquid inlet/outlet valve and open the valve. Begin applying gentle pressure of one to ten pounds per square inch to force the liquid phase of the sample into the filtrate collection container. If no additional liquid has passed through the filter in any two-minute interval, slowly increase the pressure in ten pounds per square inch increments to a maximum of fifty pounds per square inch. After each incremental increase of ten pounds per square inch, if no additional liquid has passed through the filter in any two-minute interval, proceed to the next ten pounds per square inch increment. When liquid flow has ceased such that continued pressure filtration at fifty pounds per square inch does not result in any additional filtrate within a two-minute period, stop the filtration. Close the liquid inlet/outlet valve, discontinue pressure to the piston, and disconnect and weigh the filtrate collection container.

Note: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

7.3.10 The material in the Zero-Headspace Extractor is defined as the solid phase of the waste and the filtrate is defined as the liquid phase.

Note: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. Even

after applying pressure filtration, this material will not filter. If this is the case, the material within the filtration device is defined as a solid and is carried through the Toxicity Characteristic Leaching Procedure extraction as a solid.

If the original waste contained less than one-half percent dry solids (see section 7.1.2), this filtrate is defined as the Toxicity Characteristic Leaching Procedure extract and is analyzed directly. Proceed to section 7.3.15.

7.3.11 The liquid phase may now be either analyzed immediately (see sections 7.3.13 through 7.3.15) or stored at four degrees Celsius under minimal headspace conditions until time of analysis.

Determine the weight of extraction fluid #1 to add to the Zero-Headspace Extractor as follows:

$$\text{Weight of extraction fluid} = \frac{20 \times \%\ \text{solids (sec 7.1.1)} \times \text{weight of waste filtered (sec 7.3.4 or 7.3.8}}{100}$$

7.3.12 The following sections detail how to add the appropriate amount of extraction fluid to the solid material within the Zero-Headspace Extractor and agitation of the Zero-Headspace Extractor vessel. Extraction fluid #1 is used in all cases (see section 5.7).

7.3.12.1 With the Zero-Headspace Extractor in the vertical position, attach a line from the extraction fluid reservoir to the liquid inlet/outlet valve. The line used shall contain fresh extraction fluid and should be preflushed with fluid to eliminate any air pockets in the line. Release gas pressure on the Zero-Headspace Extractor piston (from the gas inlet/outlet valve), open the liquid inlet/outlet valve, and begin transferring extraction fluid (by pumping or similar means) into the Zero-Headspace Extractor. Continue pumping extraction fluid into the Zero-Headspace Extractor until the appropriate amount of fluid has been introduced into the device.

7.3.12.2 After the extraction fluid has been added, immediately close the liquid inlet/outlet valve and disconnect the extraction fluid line. Check the Zero-Headspace Extractor to ensure that all valves are in their closed positions. Manually rotate the device in an end-over-end fashion two or three times. Reposition the Zero-Headspace Extractor in the vertical position with the liquid inlet/outlet valve on top. Pressurize the Zero-Headspace Extractor to five to ten pounds per square inch (if necessary) and slowly open the liquid inlet/outlet valve to bleed out any headspace (into a hood) that may have been introduced due to the addition of extraction fluid. This bleeding shall be done quickly and shall be stopped at the first appearance of liquid from the valve. Re-pressurize the Zero-Headspace Extractor with five to ten pounds per square inch and check all Zero-Headspace Extractor fittings to ensure that they are closed.

7.3.12.3 Place the Zero-Headspace Extractor in the rotary agitation apparatus (if it is not already there) and rotate at thirty plus or minus two revolutions per minute for eighteen plus or minus two hours. Ambient temperature (~~i.e.,~~ for example, temperature of room in which extraction occurs) shall be maintained at twenty-two plus or minus three degrees Celsius during agitation.

7.3.13 Following the eighteen plus or minus two hour agitation period, check the pressure behind the Zero-Headspace Extractor piston by quickly opening and closing the gas inlet/outlet valve and noting the escape of gas. If the pressure has not been maintained (~~i.e.,~~ for example, no gas release observed), the device is leaking. Check the Zero-Headspace Extractor for leaking as specified in section 4.2.1, and perform the extraction again with a new sample of waste. If the pressure within the device has been maintained, the material in the extractor vessel is once again separated into its component liquid and solid phases. If the waste contained an initial liquid phase, the liquid may be filtered directly into the same filtrate collection container (~~i.e.,~~ for example, TEDLAR registered trademark of DuPont) bag holding the initial liquid phase of the waste. A separate filtrate collection container must be used if combining would create multiple phases, or there is not enough volume left within the filtrate collection container. Filter through the glass fiber filter, using the Zero-Headspace Extractor device as discussed in section 7.3.9. All extract shall be filtered and collected if the TEDLAR (registered trademark of DuPont) bag is used, if the extract is multiphasic, or if the waste contained an initial liquid phase (see sections 4.6 and 7.3.1).

Note: An in-line glass fiber filter may be used to filter the material within the Zero-Headspace Extractor if it is suspected that the glass fiber filter has been ruptured.

7.3.14 If the original waste contained no initial liquid phase, the filtered liquid material obtained from section 7.3.13 is defined as the Toxicity Characteristic Leaching Procedure extract. If the waste contained an initial liquid phase, the filtered liquid material obtained from section 7.3.13 and the initial liquid phase (section 7.3.9) are collectively defined as the Toxicity Characteristic Leaching Procedure extract.

7.3.15 Following collection of the Toxicity Characteristic Leaching Procedure extract, immediately prepare the extract for analysis and store with minimal headspace at four degrees Celsius until analyzed. Analyze the Toxicity Characteristic Leaching Procedure extract according to the appropriate analytical methods. If the individual phases are to be analyzed separately (~~i.e.,~~ for example, are not miscible), determine the volume of the individual phases (to one-half percent), conduct the appropriate analyses, and combine the results mathematically by using a simple volume-weighted average:

$$\text{Final analyte concentration} = \frac{(V_1)(C_1) + (V_2)(C_2)}{V_1 + V_2}$$

where:

V_1=The volume of the first phases ~~(l).~~ (L).
C_1=The concentration of the analyte of concern in the first phase (mg/~~l~~ L).
V_2=The volume of the second phase ~~(l).~~ (L).
C_2=The concentration of the analyte of concern in the second phase (mg/~~l~~ L).

7.3.16 Compare the analyte concentrations in the Toxicity Characteristic Leaching Procedure extract with the levels identified in the appropriate regulations. Refer to section 8.0 for quality assurance requirements.

8.0 Quality Assurance Requirements

8.1 A minimum of one blank (using the same extraction fluid as used for the samples) must be analyzed for every twenty extractions that have been conducted in an extraction vessel.

8.2 A matrix spike shall be performed for each waste type (~~e.g.,~~ for example, wastewater treatment sludge, contaminated soil, etc.) unless the result exceeds the regulatory level and the data is being used solely to demonstrate that the waste property exceeds the regulatory level. A minimum of one matrix spike must be analyzed for each analytical batch. As a minimum, follow the matrix spike addition guidance provided in each analytical method.

8.2.1 Matrix spikes are to be added after filtration of the Toxicity Characteristic Leaching Procedure extract and before preservation. Matrix spikes should not be added prior to Toxicity Characteristic Leaching Procedure extraction of the sample.

8.2.2 In most cases, matrix spike levels should be added at a concentration equivalent to the corresponding regulatory level. If the analyte concentration is less than one-half the regulatory level, the spike concentration may be as low as one-half of the analyte concentration but may not be less than five times the method detection limit. In order to avoid differences in matrix effects, the matrix spikes must be added to the same nominal volume of Toxicity Characteristic Leaching Procedure extract as that which was analyzed for the unspiked sample.

8.2.3 The purpose of the matrix spike is to monitor the performance of the analytical methods used, and to determine whether matrix interferences exist. Use of other internal calibration methods, modification of the analytical methods, or use of alternate analytical methods may be needed to accurately measure the analyte concentration in the Toxicity Characteristic Leaching Procedure extract when the recovery of the matrix spike is below the expected analytical method performance.

8.2.4 Matrix spike recoveries are calculated by the following formula:

$$\%R \text{ (Percent recovery)} = 100(X_s - X_u)/K$$

where:

X_s = measured value for the spiked sample,
X_u = measured value for the unspiked sample, and
K = known value of the spike in the sample.

8.3 All quality control measures described in the appropriate analytical methods shall be followed.

8.4 The use of internal calibration quantitation methods shall be employed for a metallic contaminant if recovery of the contaminant from the Toxicity Characteristic Leaching Procedure extract is not at least fifty percent and the concentration does not exceed the regulatory level, and the concentration of the contaminant measured in the extract is within twenty percent of the appropriate regulatory level.

8.4.1 The method of standard additions must be employed as the internal calibration quantitation method for each metallic contaminant.

8.4.2 The method of standard additions requires preparing calibration standards in the sample matrix rather than reagent water or blank solution. It requires taking four identical aliquots of the solution and adding known amounts of standard to three of these aliquots. The fourth aliquot is the unknown. Preferably, the first addition should be prepared so that the resulting concentration is approximately fifty percent of the expected concentration of the sample. The second and third additions should be prepared so that the concentrations are approximately one hundred percent and one hundred fifty percent of the expected concentration of the sample. All four aliquots are maintained at the same final volume by adding reagent water or a blank solution, and may need dilution adjustment to maintain the signals in the linear range of the instrumental technique. All four aliquots are analyzed.

8.4.3 Prepare a plot, or subject data to linear regression, of instrumental signals or external-calibration-derived concentrations as the dependent variable (y-axis) versus concentrations of the additions of standard as the independent variable (x-axis). Solve for the intercept of the abscissa (the independent variable, x-axis) which is the concentration in the unknown.

8.4.4 Alternately, subtract the instrumental signal or external-calibration-derived concentration of the unknown (unspiked) sample from the instrumental signals or external-calibration-derived concentrations of the standard additions. Plot or subject data to linear regression of the corrected instrumental signals or external-calibration-derived concentrations as the dependent variable versus the independent variable. Derive concentrations for unknowns using the internal calibration curve as if it were an external calibration curve.

8.5 Samples must undergo Toxicity Characterisic Leaching Procedure extraction within the following time periods:

Sample Maximum Holding Times (Days)

	From: field collection to TCLP extraction	From: TCLP extraction to: preparative extraction	From: preparative extraction to: determinative analysis	Total elapsed time
Volatiles	14	NA	14	28
Semi-volatiles	14	7	40	61
Mercury	28	NA	28	56
Metals, except mercury	180	NA	180	360

NA=Not applicable.

If sample holding times are exceeded, the values obtained will be considered minimal concentrations. Exceeding the holding time is not acceptable in establishing that a waste does not exceed the regulatory level. Exceeding the holding time will not invalidate characterization if the waste exceeds the regulatory level.

~~Table 1. Volatile Analytes[1,2]~~

~~Compound~~	~~CAS No.~~
~~Acetone~~	~~67-64-1~~
~~Benzene~~	~~71-43-2~~
~~n-Butyl alcohol~~	~~71-36-3~~
~~Carbon disulfide~~	~~75-15-0~~
~~Carbon tetrachloride~~	~~56-23-5~~
~~Chlorobenzene~~	~~108-90-7~~
~~Chloroform~~	~~67-66-3~~
~~1,2-Dichloroethane~~	~~107-06-2~~
~~1,1-Dichloroethylene~~	~~75-35-4~~
~~Ethyl acetate~~	~~141-78-6~~
~~Ethyl benzene~~	~~100-41-4~~
~~Ethyl ether~~	~~60-29-7~~
~~Isobutanol~~	~~78-83-1~~
~~Methanol~~	~~67-56-1~~
~~Methylene chloride~~	~~75-09-2~~
~~Methyl ethyl ketone~~	~~78-93-3~~
~~Methyl isobutyl ketone~~	~~108-10-1~~
~~Tetrachloroethylene~~	~~127-18-4~~
~~Toluene~~	~~108-88-3~~
~~1,1,1,-Trichloroethane~~	~~71-55-6~~
~~Trichloroethylene~~	~~79-01-6~~
~~Trichlorofluoromethane~~	~~75-69-4~~
~~1,1,2-Trichloro-1,2,2-trifluoroethane~~	~~76-13-1~~
~~Vinyl chloride~~	~~75-01-4~~
~~Xylene~~	~~1330-20-7~~

~~FOOTNOTE: [1]When testing for any or all of these analytes, the zero-headspace extractor vessel shall be used instead of the bottle extractor.~~

~~FOOTNOTE: [2]Benzene, carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorethane, 1,1-dichloroethylene, methyl ethyl ketone, tetrachloroethylene, trichloroethylene, and vinyl chloride are toxicity characteristic constituents.~~

~~Table 2. Suitable Rotary Agitation Apparatus[1]~~

~~Company~~	~~Location~~	~~Model No.~~
~~Analytical Testing and Consulting Services, Inc.~~	~~Warrington, PA, (215) 343-4490~~	~~4-vessel (DC20S), 8-vessel (DC20), 12-vessel (DC20B).~~

Associated Design and Manufacturing Company	Alexandria VA, (703) 549-5999	2-vessel (3740-2), 4-vessel (3740-4), 6-vessel (3740-6), 8-vessel (3740-8), 12-vessel (3740-12), 24-vessel (3740-24).
Environmental Machine and Design, Inc.	Lynchburg, VA, (804) 845-6424	8-vessel (08-00-00) 4-vessel (04-00-00).
IRA Machine Shop and Laboratory	Santurce, PR, (809) 752-4004	8-vessel (011001).
Lars Lande Manufacturing	Whitmore Lake, MI, (313) 449-4116	10-vessel (01VRE), 5-vessel (5VRE).
Millipore Corp.	Bedford, MA, (800) 225-3384	4-ZHE or 4 1-liter, bottle extractor, (YT300RAHW).

FOOTNOTE: [1]Any device that rotates the extraction vessel in an end-over-end fashion at 30 ± 2 rpm is acceptable.

Table 3. Suitable Zero-Headspace Extractor Vessels[1]

Company	Location	Model No.
Analytical Testing & Consulting Services, Inc.	Warrington, PA, (215) 343-4490	C102, Mechanical Pressure Device.
Associated Design and Manufacturing Company	Alexandria VA, (703) 549-5999	3745-ZHE, Gas Pressure Device.
Lars Lande Manufacturing[2]	Whitmore Lake, MI, (313) 449-4116	ZHE-11, Gas Pressure Device.
Millipore Corporation	Bedford, MA, (800) 225-3384	YT30090HW, Gas Pressure Device.
Environmental Machine and Design, Inc.	Lynchburg, VA, (804) 845-6424	VOLA-TOX1, Gas Pressure Device.

FOOTNOTE: [1]Any device that meets the specifications listed in section 4.2.1. of the method is acceptable.
FOOTNOTE: [2]This device uses a 110-mm filter.

Table 4. Suitable Filter Holders[1]

Company	Location	Model/catalogue No.	Size
Nucleopore Corporation	Pleasanton, CA, (800) 882-7711	425910 410400	142mm, 47 mm.
Micro Filtration Systems	Dublin, CA, (800) 334-7132, (415) 828-6010	302400 311400	142 mm, 47 mm.
Millipore Corporation	Bedford, MA, (800) 225-3384	YT30142HW XX1004700	142 mm, 47 mm.

FOOTNOTE: [1]Any device capable of separating the liquid from the solid phase of the waste is suitable, providing that it is chemically compatible with the waste and the constituents to be analyzed. Plastic devices (not listed above) may be used when only inorganic analytes are of concern. The 142 mm size filter holder is recommended.

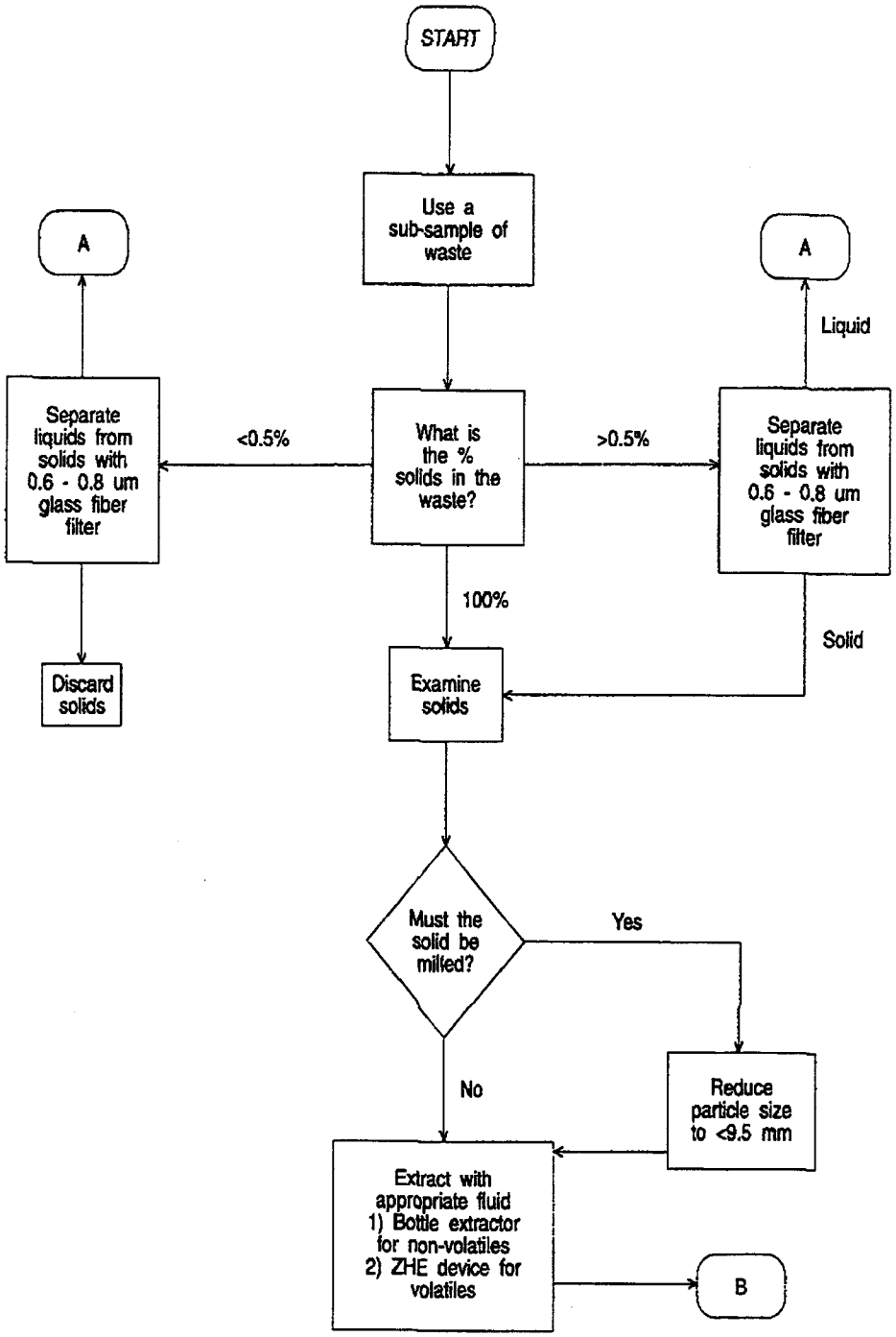
Table 5. Suitable Filter Media[1]

Company	Location	Model	Pore Size (µm)
Millipore Corporation	Bedford, MA, (800) 225-3384	AP40	0.7
Nucleopore Corporation	Pleasanton, CA, (415) 463-2530	211625	0.7
Whatman Laboratory Products, Inc.	Clifton, NJ, (201) 773-5800	GFF	0.7
Micro Filtration Systems	Dublin, CA, (800) 334-7132, (415) 828-6010	GF75	0.7

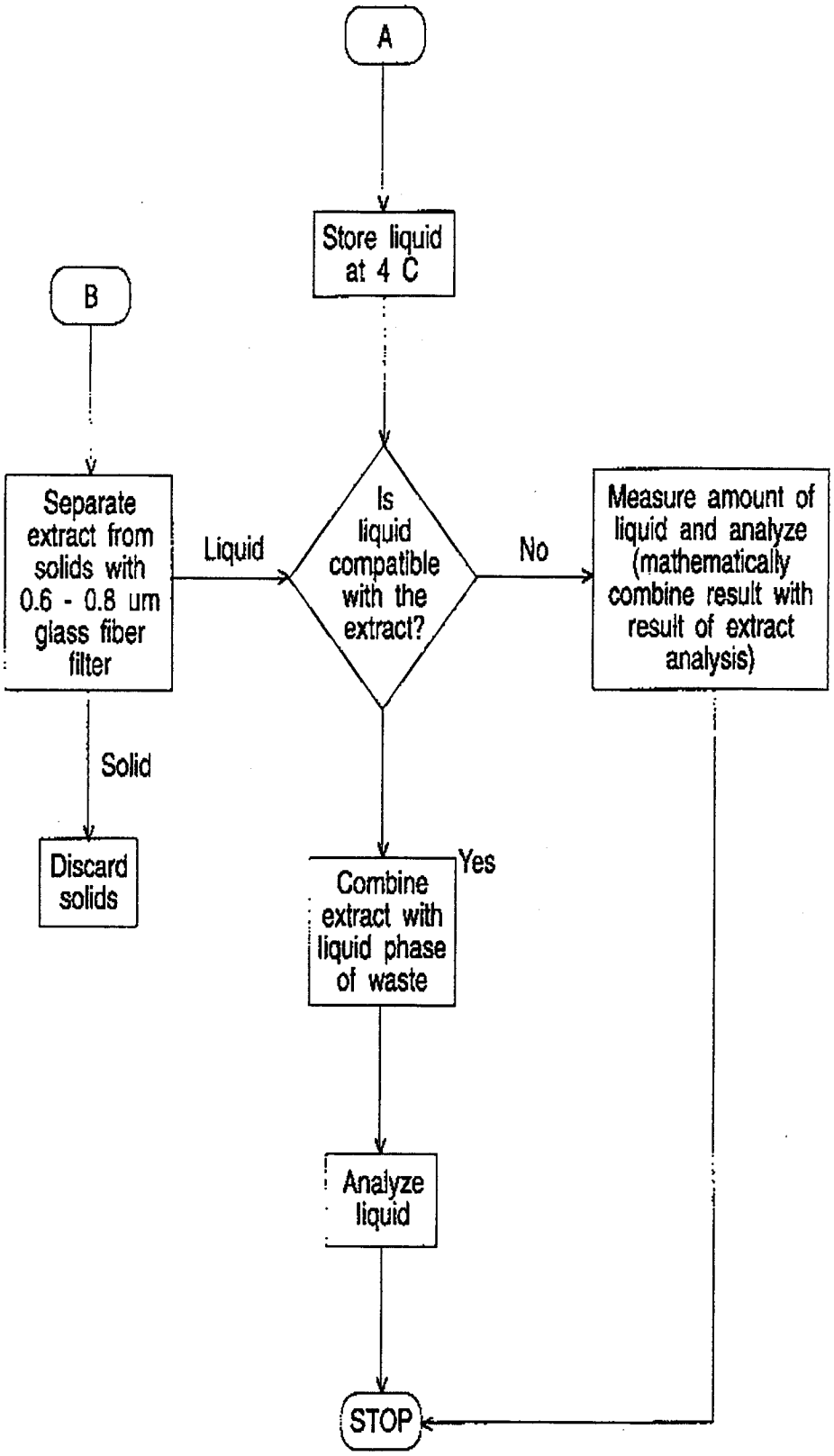
~~FOOTNOTE: [1]Any filter that meets the specifications in section 4.4 of the Method is suitable.~~

METHOD 1311

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE



TOXICITY CHARACTERISTIC LEACHATE PROCEDURE



APPENDIX III

CHEMICAL ANALYSIS TEST METHODS

Note: Appropriate analytical procedures to determine whether a sample contains a given toxic constituent are specified in chapter two, "Choosing the Correct Procedure" found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05. Prior to final sampling and analysis method selection, the individual should consult the specific section or method described in SW-846 for additional guidance on which of the approved methods should be employed for a specific sample analysis situation.

Tables 1, 2, and 3 specify the appropriate analytical procedures described in "Test Methods for Evaluating Solid Waste, Physical Chemical Methods" incorporated by reference, (see section 33-24-01-05), which shall be used to determine whether a sample contains a given appendix IV or V toxic constituent.

Table 1 identifies each appendix IV or V organic constituent along with the approved measurement method. Table 2 identifies the corresponding methods for the inorganic species. Table 3 summarizes the contents of SW-846 and supplies specific section and method numbers for sampling and analysis methods.

Prior to final sampling and analysis method selection, and for additional guidance on which of the approved methods should be employed for a specific sample analysis situation, the analyst should consult the specific section or method described in SW-846.

Table 1. Analysis Methods for Organic Chemicals Contained in SW-846

Compound	Method Numbers
Acetonitrile	8030, 8240
Acrolein	8030, 8240
Acrylamide	8015, 8240
Acrylonitrile	8030, 8240
2-Amino-l-methylbenzene(o-Toluidine)	8250
4-Amino-l-methylbenzene(p-Toluidine)	8250
Aniline	8250
Benzene	8020, 8024
Benz(a)anthracene	8100, 8250, 8310
Benzo(a)pyrene	8100, 8250, 8310
Benzotrichloride	8120, 8250
Benzyl chloride	8120, 8250
Benzo(b)fluoranthene	8100, 8250, 8310
Benzo(k)fluoranthene	8100,8250, 8270, 8310
8310Bis(2-chloroethoxymethane)	8010, 8240
Bis(2-chloroethyl)ether	8010, 8240
Bis(2-chloroisopropyl)ether	8010, 8240
Carbon disulfide	8015, 8240
Carbon tetrachloride	8010, 8240
Chlordane	8080, 8250
Chlorinated dibenzo-p-dioxins	8280
Chlorinated dibenzofurans	8280
Chlorinated biphenyls	8080, 8250
Chloroacetaldehyde	8010, 8240
Chlorobenzene	8020, 8240
Chloroform	8010, 8240
Chloromethane	8010, 8240
2-Chlorophenol	8040, 8250
Chrysene	8100, 8250, 8310
Creosote[1]	8100, 8250
Cresol(s)	8040, 8250
Cresylic Acid(s)	8040, 8250
Dichlorobenzene(s)	8010, 8120, 8250
Dichloroethane(s)	8010, 8240
Dichloromethane	8010, 8240
Dichlorophenoxyacetic acid	8150, 8250
Dichloropropanol	8120, 8250
2,4-Dimethylphenol	8040, 8250
1,1-Dimethylhydrazine (UDMH)	8250
Dimethyl sulfate	8250, 8270
Dinitrobenzene	8090, 8250
4,6-Dinitro-o-cresol	8040, 8250
2,4-Dinitrotoluene	8090, 8250
2,6-Dinitrotoluene	8060, 8250

Table 1. Analysis Methods for Organic Chemicals Contained in SW-846

Compound	Method Numbers
Endrin	8080, 8250
2-Ethoxyethanol	8030, 8240
Ethyl ether	8015, 8240
Ethylene dibromide	8010, 8240
Ethylene thiourea	8250, 8330
Formaldehyde	8015, 8240
Formic acid	8250
Heptachlor	8080, 8250
Hexachlorobenzene	8120, 8250
Hexachlorobutadiene	8120, 8250
Hexachloroethane	8010, 8240
Hexachlorocyclopentadiene	8120, 8250
Lindane	8080, 8250
Maleic anhydride	8250
Methanol	8010, 8240
Methomyl	8250
Methyl bromide	8010, 8240, 8260
Methyl ethyl ketone	8015, 8240
Methyl isobutyl ketone	8015, 8240
Napthalene	8100, 8250
Napthoquinone	8090, 8250
Nitrobenzen	8090, 8250
4-Nitrophenol	8040, 8240
2-Nitropropane	8030, 8240
Paraldehyde (trimer of acetaldehyde)	8015, 8240
Pentachlorophenol	8040, 8250
Phenol	8040, 8250
Phorate	8140
Phosphorodithioic acid esters	8140
Phthalic anhydride	8090, 8250
2-Picoline	8090, 8250
Pyridine	8090, 8250
Tetrachlorobenzene(s)	8120, 8250
Tetrachloroethane(s)	8010, 8240
Tetrachloroethene	8010, 8240
Tetrachlorophenol	8040, 8250
Toluene	8020, 8024
Toluene diisocyanate(s)	8250
Toluenediamine	8250
2,4-Toluenediamine	8250
2,6-Toluenediamine	8250
3,4-Toluenediamine	8250
Toxaphene	8080, 8250
Trichloroethane	8010, 8240
Trichloroethene(s)	8010, 8240
Trichlorofluoromethane	8010, 8240
Trichlorophenol(s)	8040, 8250
2,4,5-Trichlorophenoxy propionic acid	8150, 8250
Trichloropropane	8010, 8240
Vinyl chloride	8010, 8240
Vinylidene chloride	8010, 8240
Xylene	8020, 8240

[1]Aralyne for phenanthrene and carbazole; if these are present in a ratio between 1.4:1 and 5:1, creosote should be considered present.

Table 2. Analysis Methods for Inorganic Chemicals and Miscellaneous Groups of Analytes Contained in SW-846[a]

Compound	Method(s)	Third Edition Method(s)	Second Edition
Aluminum	6010		
Antimony	6010		7040, 7041
Arsenic	6010		7060, 7061
Barium	6010		7080, 7081
Beryllium	6010, 7090, 7091		
Boron	6010		
Cadmium	6010		7130, 7131

Table 2. Analysis Methods for Inorganic Chemicals and Miscellaneous Groups of Analytes Contained in SW-846[a]

Compound	Third Edition Method(s)	Second Edition Method(s)
Calcium	6010	
Chromium	6010	7190, 7191
Chromium: Hexavalent	7196	7195, 7196, 7197
Cobalt	6010	
Copper	6010, 7210, 7211	
Iron	6010, 7380, 7381	
Lead	6010	7420, 7421
Magnesium	6010	
Manganese	6010, 7460,7461	
Mercury		7470, 7471
Molybdenum	6010	
Nickel	6010	7520, 7521
Osmium	7550	
Potassium	6010	
Selenium	6010	7740, 7741
Silicon	6010	
Silver	6010	7760, 7761
Sodium	6010, 7770	
Thallium	6010, 7840, 7841	
Vanadium	6010, 7910, 7911	
Zinc	6010, 7950, 7951	
Cyanides		9010
Total Organic Halides	9022	9020
Sulfides		9030
Sulfates	9035, 9036, 9038	
Total Organic Carbon	9060	
Phenolics		9065, 9066*, 9067
Oil and Grease	9070, 9071	
Total Coliform	9131, 9132	
Nitrate	9200	
Chlorides	9250, 9251, 9252	
Gross Alpha and Gross Beta	9310	
Alpha-Emitting Radium Isotopes	9315	
Radium-228	9320	

The third edition of SW-846 and ~~update~~ its revision I are available from the Government Printing Office, Superintendent of Documents, Washington, D.C. 20402, 202-738-3238, document number 955-001-00000-1.

*When method 9066 is used, it must be preceded by the manual ~~disulfation~~ distillation specified in procedure 7.1 of method 9065. Just prior to distillation in method 9065, adjust the sulfuric acid-preserved sample to pH 4 with 1+9 NaOH. After the manual distillation is completed, the autoanalyzer manifold is simplified by connecting the resample line directly to the sampler.

Table 3. Sampling and Analysis Methods Contained in SW-846

Compound	Third Edition Section No.	Third Edition Method No.	Second Edition Section No.	Second Edition Method No.
Quality Control	1.0		10.0	
Introduction	1.1		10.1	
Quality Control	1.2			
Method Detection Limit	1.3			
Data Reporting	1.4			
Quality Control Documentation	1.5			
References	1.6			
Choosing the Correct Procedure	2.0			
Purpose	2.1			
Required Information	2.2			
Implementing the Guidance	2.3			
Characteristics	2.4			
Ground Water	2.5			
References	2.6			
Metallic Analytes	3.0			
Sampling Considerations	3.1			
Sampling Preparation Methods	3.2			
Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by Flame AAS or ICP	3.2	3005		

Table 3. Sampling and Analysis Methods Contained in SW-846

Compound	Third Edition Section No.	Third Edition Method No.	Second Edition Section No.	Second Edition Method No.
Acid Digestion of Aqueous Samples and Extracts for Total Metals by Flame AAS or ICP	3.2	3010	4.1	3010
Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Furnace AAS	3.2	3020	4.1	3020
Dissolution Procedure for Oils, Greases, or Waxes	3.2	3040	4.1	3040
Acid Digestion of Sediments, Sludges, and Soils	3.2	3050	4.1	3050
Methods for the Determination of Metals	3.3			
Inductively Coupled Plasma Atomic Emissions Spectroscopy	3.3	*6010		
Atomic Absorption Methods	3.3	7000		
Aluminum, Flame AAS	3.3	7020		
Antimony, Flame AAS	3.3	7040	7.0	7040
Antimony, Furnace AAS	3.3	7041	7.0	7041
Arsenic, Furnace AAS	3.3	7060	7.0	7060
Arsenic, Gaseous Hydride AAS	3.3	7061	7.0	7061
Barium, Flame AAS	3.3	7080	7.0	7080
Barium, Furnace AAS	3.3	7081	7.0	7881
Beryllium, Flame AAS	3.3	*7000		
Beryllium, Furnace AAS	3.3	*7091		
Cadmium, Flame AAS	3.3	7130	7.0	7130
Cadmium, Furnace AAS	3.3	7131	7.0	7131
Calcium, Flame AAS	3.3	7140		
Chromium, Flame AAS	3.3	7190	7.0	7190
Chromium, Furnace AAS	3.3	7191	7.0	7191
Chromium, Hexavalent, Coprecipitation	3.3	7195	7.0	7195
Chromium, Hexavalent, Colorimetric	3.3	7196	7.0	7196
Chromium, Hexavalent, Chelation/Extraction	3.3	7197	7.0	7197
Chromium, Hexavalent, Differential Pulse Polarography	3.3	*7198		
Cobalt, Flame AAS	3.3	7200		
Cobalt, Furnace AAS	3.3	7201		
Copper, Flame AAS	3.3	*7210		
Copper, Furnace AAS	3.3	*7211		
Iron, Flame AAS	3.3	*7380		
Iron, Furnace AAS	3.3	*7381		
Lead, Flame AAS	3.3	7420	7.0	7470
Lead, Furnace AAS	3.3	7421	5.0	7421
Magnesium, Flame AAS	3.3	7450		
Manganese, Flame AAS	3.3	*7460		
Manganese, Furnace AAS	3.3	*7461		
Mercury in Liquid Waste, Manual Cold Vapor Technique	3.3	7470	7.0	7470
Mercury in Solid or Semisolid Waste, Manual Cold Vapor Technique	3.3	7471	7.0	7471
Molybdenum, Flame AAS	3.3	7480		
Molybdenum, Furnace AAS	3.3	7481		
Nickel, Flame AAS	3.3	7520	7.0	7520
Osmium, Flame AAS	3.3	*7550		
Potassium, Flame AAS	3.3	7610		
Selenium, Furnace AAS	3.3	7740	7.0	7740
Selenium, Gaseous Hydride AAS	3.3	7741	7.0	7741
Silver, Flame AAS	3.3	7760	7.0	7760
Silver, Furnace AAS	3.3	7761	7.0	7761
Sodium, Flame AAS	3.3	*7770		
Thallium, Flame AAS	3.3	*7840		
Thallium, Furnace AAS	3.3	*7841		
Tin, Flame AAS	3.3	7870		
Vanadium, Flame AAS	3.3	*7910		
Vanadium, Furnace AAS	3.3	*~~7941~~ 7911		
Zinc, Flame AAS	3.3	*7950		
Zinc, Furnace AAS	3.3	*7951		
Organic Analytes	4.0		8.0	
Sampling Considerations	4.1			
Sample Preparation Methods	4.2			
Extractions and Preparation	4.2.1			
Organic Extraction and Sample Preparation	4.2.1	3500		
Separatory Funnel Liquid-Liquid Extraction	4.2.1	3510	4.2	3510

Table 3. Sampling and Analysis Methods Contained in SW-846

Compound	Third Edition Section No.	Third Edition Method No.	Second Edition Section No.	Second Edition Method No.
Continuous Liquid-Liquid Extraction	4.2.1	3520	4.2	3520
Soxhlet Extraction	4.2.1	3540	4.2	3540
Ultrasonic Extraction	4.2.1	3550	4.2	3550
Waste Dilution	4.2.1	3580		
Purge and Trap	4.2.1	5030	5.0	5030
Protocol for Analysis of Sorbent Cartridges from VOST	4.2.1	*5040		
Cleanup	4.2.2			
Cleanup	4.2.2	3600		
Alumina Column Cleanup	4.2.2	3610		
Alumina Column Cleanup and Separation of Petroleum Wastes	4.2.2	*3611		
Florisil Column Ceanup	4.2.2	3620		
Silica Gel Cleanup	4.2.2	3630		
Gel-Permeation Cleanup	4.2.2	3640		
Acid-Base Partition Cleanup	4.2.2	3650	4.2	3530
Sulfur Cleanup	4.2.2	3660		
Determination of Organic Analytes	4.3			
Gas Chromatographic Methods	4.3.1		8.1	
Gas Chromatography	4.3.1	8000		
Halogenated Volatile Organics	4.3.1	8010	8.1	8010
EDB and DBCP	4.3.1	8011		
Nonhalogenated Volatile Organics	4.3.1	8015	8.1	8015
Aromatic Volatile Organics	4.3.1	8020	8.1	8020
Volatile Organic Compounds in Water by Purge-and-Trap Capillary Column GC with PID and Electrolytic Conductivity Detector in Series	4.3.1	8021		
Acrolein, Acrylonitrile, Acetonitrile	4.3.1	8030	8.1	8030
Phenols	4.3.1	8040	8.1	8040
Phthalate Esters	4.3.1	8060	8.1	8060
Nitrosamines	4.3.1	8070		
Organochlorine Pesticides and PCBs as Aroclors	4.3.1	8080	8.1	8080
Nitroaromatics and Cyclic Ketones	4.3.1	8090	8.1	8090
Polynuclear Aromatic Hydrocarbons	4.3.1	8100	8.1	8100
Haloethers	4.3.1	8110		
Chlorinated Hydrocarbons	4.3.1	8120	8.1	8120
Organophosphorus Pesticides	4.3.1	8140	8.1	8140
Organophosphorus Pesticides: Capillary Column	4.3.1	8141		
Chlorinated Herbicides	4.3.1	8150	8.1	8150
Gas Chromatographic/Mass Spectroscopic Methods	4.3.2		8.2	
GC/MS Volatiles	4.3.2	8240	8.2	8240
GC/MS Semivolatiles, Packed Column	4.3.2	8250	8.2	8250
GC/MS for Volatiles Capillary Column	4.3.2	8260		
GC/MS Semivolatiles, Capillary Column	4.3.2	8270	8.2	8270
Analysis of Chlorinated Dioxins and Dibenzofurans	4.3.2	8280		
High Performance Liquid Chromatographic Methods (HPLC)	4.3.3		8.3	
Polynuclear Aromatic Hydrocarbons	4.3.3	8310	8.3	8310
Miscellaneous Screening Methods	4.4			
Headspace	4.4	3810	5.0	5020
Hexadecane Extraction as Screening of Purgeable Organics	4.4	3820		
Miscellaneous Test Methods	5.0		9.0	
Total and Amenable Cyanide (Colorimetric, Manual)	5.0	9010	9.0	9010
Total and Amenable Cyanide (Colorimetric, Automated)	5.0	9012		
Total Organic Halides (TOX)	5.0	9020	9.0	9020
Purgeable Organic Halides (POX)	5.0	9021		
Total Organic Halides (TOX) by Neutron Activation Analysis	5.0	*9022		
Acid-Soluble and Acid-Insoluble Sulfides	5.0	9030	9.0	9030
Extractable Sulfides	5.0	9031		
Sulfate, (Colorimetric, Automated, Chloranilate)	5.0	*9035		
Sulfate, (Colorimetric, Automated, Methylthymol Blue, AA, II)	5.0	*9036		
Sulfate, (Turbidimetric)	5.0	*9038		
Total Organic Carbon	5.0	*9060		
Phenolics, (Spectrophotometric, Manual 4-AAP)	5.0	*9065		
Phenolics, (Colorimetric, Automated 4-AAP)	5.0	*+9066		

Table 3. Sampling and Analysis Methods Contained in SW-846

Compound	Third Edition Section No.	Third Edition Method No.	Second Edition Section No.	Second Edition Method No.
Phenolics, (Spectrophotometric, MBTH)	5.0	*9067		
Total Recoverable Oil and Grease (Gravimetric, Separatory Funnel Extraction)	5.0	*9070		
Oil and Grease Extraction Method for Sludge Samples	5.0	*9071		
Total Coliform: Multiple Tube Fermentation	5.0	*9131		
Total Coliform: Membrane Filter	5.0	*9132		
Nitrate	5.0	*9200		
Chloride (Colorimetric, Automated Ferricyanide AAI)	5.0	*9250		
Chloride (Colorimetric, Automated Ferricyanide AAI)	5.0	*9251		
Chloride (Titrimetric, Mercuric Nitrate)	5.0	*9252		
Properties	6.0			
Multiple Extraction Prodedure	6.0	*1320		
Extraction Procedure for Oily Wastes	6.0	*1330		
pH Electrometric Measurement	6.0	9040	9.0	9040
pH Paper Method	6.0	9041		
Soil pH	6.0	9045		
Specific Conductance	6.0	9050		
Cation-Exchange Capacity of Soils (Ammonium Acetate)	6.0	*9080		
Cation-Exchange Capacity of Soils (Sodium Acetate)	6.0	*9081		
Compatibility Test for Wastes and Membrane Liners	6.0	9090		
Paint Filter Liquids Test	6.0	9095	9.0	9095
Saturated Hydraulic Conductivity, Saturated Leachate Conductivity, and Intrinsic Permeability	6.0	*9100		
Gross Alpha and Gross Beta	6.0	*9310		
Alpha-Emitting Radium Isotopes	6.0	*9315		
Radium-228	6.0	*9320		
Introduction and Regulatory Definitions	7.0		2.0	
Ignitability	7.1		2.1.1	
Corrosivity	7.2		2.1.2	
Reactivity	7.3		2.1.3	
Test Method to Determine Hydrogen Cyanide Released from Wastes	7.3			
Test Method to Determine Hydrogen ~~Cyanide~~ Sulfide Released from wastes	7.3			
Extraction Procedure Toxicity	7.4		2.1.4	
Methods for Determining Characteristics	8.0		2.0	
Ignitability	8.1		2.1.1	
Pensky-Martens Closed-Cup Method	8.1	1010	2.1.1	1010
Setaflash Closed-Cup	8.1	1020	2.1.1	1020
Corrosivity	8.2		2.1.2	
Corrosivity Toward Steel	8.2	1110	2.1.2	1110
Reactivity	8.3		2.1.3	
Toxicity	8.4		2.1.4	
Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test	8.4	1310	2.1.4	1310
Sampling Plan	9.0		1.0	
Design and Development	9.1		1.0,1.1	
Implementation	9.2		1.2,1.3,1.4	
Sampling Methods	10.0			
Modified Method 5 Sampling Train, Appendix A and B	10.0	*0010		
Source Assessment Sampling System (SASS)	10.0	*0020		
Volatile Organic Sampling Train	10.0	*0030		
Ground Water Monitoring	11.0			
Background and Objectives	11.1			
Relationship to the Regulations and to Other Documents	11.2			
Revisions and Additions	11.3			
Acceptable Designs and Practices	11.4			
Unacceptable Designs and Practices	11.5			
Land Treatment Monitoring	12.0			
Background	12.1			
Treatment Zone	12.2			
Regulatory Definition	12.3			
Monitoring and Sampling Strategy	12.4			
Analysis	12.5			
References and Bibliography	12.6			

Table 3. Sampling and Analysis Methods Contained in SW-846

Compound	Third Edition Section No.	Third Edition Method No.	Second Edition Section No.	Second Edition Method No.
Incineration	13.0			
Introduction	13.1			
Regulatory Definition	13.2			
Waste Characterization Strategy	13.3			
Stack-Gas Effluent Characterization Strategy	13.4			
Additional Effluent Characterization Strategy	13.5			
Selection of Specific Sampling and Analysis Methods	13.6			
References	13.7			

The third edition of SW-846 and ~~update~~ its revision I are available from the Government Printing Office, Superintendent of Documents, Washington, D.C. 20402, 202-738-3238, document number 955-001-00000-1.

*This method may be used in conjunction with or in addition to the methods found in the second edition of SW-846 as amended by updates I and II.

+When method 9066 is used it must be preceded by the manual distillation specified in procedure 7.1 of method 9065. Just prior to distillation in method 9065, adjust the sulfuric acid-preserved sample to pH 4 with 1+9 NaOH. After the manual distillation is completed, the autoanalyzer manifold is simplified by connecting the re-sample line directly to the sampler.

APPENDIX IV
BASIS FOR LISTING HAZARDOUS WASTE

EPA Hazardous Waste No.	Hazardous Waste Constituents for Which Listed
F001	Tetrachloroethylene, methylene chloride trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons.
F002	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane.
F003	N.A.
F004	Cresols and cresylic acid, nitrobenzene.
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, 2-ethoxyethanol, benzene, 2-nitropropane.
F006	Cadmium, hexavalent chromium, nickel, cyanide (complexed).
F007	Cyanide (salts).
F008	Cyanide (salts).
F009	Cyanide (salts).
F010	Cyanide (salts).
F011	Cyanide (salts).
F012	Cyanide (complexed).
F019	Hexavalent chromium, cyanide (complexed).
F020	Tetra- and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachloro-phenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F021	Penta- and hexachlorodibenzo-p-dioxins; penta- and hexachlorodibenzofurans; pentachlorophenol and its derivatives.
F022	Tetra-, penta, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans.
F023	Tetra, and pentachlorodibenzo-p-dioxins; tetra-, and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F024	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1-2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene, dichlorobenzenes, trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene.
F025	Chloromethane; dichloromethane; 1,2,4-trichloromethane; carbon tetrachloride; chloroethylene; 1,1-dichloroethane; 1,2-dichloroethane; trans-1,2-dichloroethylene; 1,1-dichloroethylene; 1,1,1-trichloroethane; 1,1,2-trichloroethane; trichloroethylene; 1,1,1,2-tetrachloroethane; 1,1,2,2-tetrachloroethane; tetrachloroethylene; pentachloroethane; hexachloroethane; allyl chloride (3-chloropropene); dichloropropane; dichloropropene; 2-chloro-1,3-butadiene; hexachloro-1,3-butadiene; hexachlorocyclopentadiene; benzene; chlorobenzene; dichlorobenzene; 1,2,4-trichlorobenzene; tetrachlorobenzene; pentachlorobenzene; hexachlorobenzene; toluene; naphthalene.
F026	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans.
F027	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.

APPENDIX IV (continued)
BASIS FOR LISTING HAZARDOUS WASTE

EPA Hazardous Waste No.	Hazardous Waste Constituents for Which Listed
F028	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F032	Benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)-anthracene,indeno(1,2,3-cd)pyrene, pentachlorophenol, arsenic, chromium, tetra-, penta-, hexa-, heptachlorodibenzo-p-dioxins, tetra-, penta-, hexa-, heptachlorodibenzofurans.
F034	Benz(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, arsenic, chromium.
F035	Arsenic, chromium, lead.
F037	Benzene, benzo(a)pyrene, chrysene, lead, chromium.
F038	Benzene, benzo(a)pyrene chrysene, lead, chromium.
F039	All constituents for which treatment standards are specified for multisource leachate (wastewaters and nonwastewaters) under subsection 1 of section 33-24-05-283, Table CCW.
K001	Pentachlorophenol, phenol, 2-chlorophenol, p-chloro-m-cresol, 2,4-dimethylphenyl, 2,4-dinitrophenol, trichlorphenols, tetrachlorophenols, 2,4-dinitrophenol, creosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd) pyrene, benz(a)anthracene, dibenz(a)anthracene, acenaphthalene.
K002	Hexavalent chromium, lead.
K003	Hexavalent chromium, lead.
K004	Hexavalent chromium.
K005	Hexavalent chromium, lead.
K006	Hexavalent chromium.
K007	Cyanide (complexed), hexavalent chromium.
K008	Hexavalent chromium.
K009	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid.
K010	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde.
K011	Acrylonitrile, acetonitrile, hydrocyanic acid.
K013	Hydrocyanic acid, acrylonitrile, acetonitrile.
K014	Acetonitrile, acrylamide.
K015	Benzyl chloride, chlorobenzene, toluene, benzotrichloride.
K016	Hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene.
K017	Epichlorohydrin, chloroethers [bis(chloromethyl) ether and bis (2-chloroethyl) ethers], trichloropropane, dichloropropanols.
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene.
K019	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
K020	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes, (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.

APPENDIX IV (continued)
BASIS FOR LISTING HAZARDOUS WASTE

EPA Hazardous Waste No.	Hazardous Waste Constituents for Which Listed
K021	Antimony, carbon tetrachloride, chloroform.
K022	Phenol, tars (polycyclic aromatic hydrocarbons).
K023	Phthalic anhydride, maleic anhydride.
K024	Phthalic anhydride, 1,4-naphthoquinone.
K025	Meta-dinitrobenzene, 2,4-dinitrotoluene.
K026	Paraldehyde, pyridines, 2-picoline.
K027	Toluene diisocyanate, toluene-2,4-diamine.
K028	1,1,1--trichloroethane, vinyl chloride.
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform.
K030	Hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride.
K031	Arsenic.
K032	Hexachlorocyclopentadiene.
K033	Hexachlorocyclopentadiene.
K034	Hexachlorocyclopentadiene.
K035	Creosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(a)anthracene~~.~~ dibenzo(a)anthracene, acenaphthalene
K036	Toluene, phosphorodithioic and phosphorothioic acid esters.
K037	Toluene, phosphorodithioic and phosphorothioic acid esters.
K038	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K039	Phosphorodithioic and phosphorothioic acid esters.
K040	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K041	Toxaphene.
K042	Hexachlorobenzene, ortho-dichlorobenzene.
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol.
K044	N.A.
K045	N.A.
K046	Lead.
K047	N.A.
K048	Hexavalent chromium, lead.
K049	Hexavalent chromium, lead.
K050	Hexavalent chromium.
K051	Hexavalent chromium, lead.
K052	Lead.
K060	Cyanide, napthalene, phenolic compounds, arsenic.

APPENDIX IV (continued)
BASIS FOR LISTING HAZARDOUS WASTE

EPA Hazardous Waste No.	Hazardous Waste Constituents for Which Listed
K061	Hexavalent chromium, lead, cadmium.
K062	Hexavalent chromium, lead.
K064	Lead, cadmium.
K065	Do.
K066	Do.
K069	Hexavalent chromium, lead, cadmium.
K071	Mercury.
K073	Chloroform, carbon tetrachloride, hexachloroethane, trichloroethane, tetrachloroethylene, dichloroethylene, 1,1,2,2-tetrachloroethane.
K083	Aniline, diphenylamine, nitrobenzene, phenylenediamine.
K084	Arsenic.
K085	Benzene, dichlorobenzenes, trichlorbenzenes, tetrachlorobenzenes, pentachlorobenzene, hexachlorobenzene, benzyl chloride.
K086	Lead, hexavalent chromium.
K087	Phenol, naphthalene.
K088	Cyanide (complexes).
K090	Chromium.
K091	Do.
K093	Phthalic anhydride, maleic anhydride.
9	
K094	Phthalic anhydride.
K095	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane.
K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane.
K097	Chlordane, heptachlor.
K098	Toxaphene.
K099	2,4-dichlorophenol, 2,4,6-trichlorophenol.
K100	Hexavalent chromium, lead, cadmium.
K101	Arsenic.
K102	Arsenic.
K103	Aniline, nitrobenzene, phenylenediamine.
K104	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine.
K105	Benzene, monochlorobenzene, dichlorobenzenes, 2,4,6-trichlorophenol.
K106	Mercury.
K107	1,1-Dimethylhydrazine (UDMH).
K108	1,1-Dimethylhydrazine (UDMH).
K109	1,1-Dimethylhydrazine (UDMH).

APPENDIX IV (continued)
BASIS FOR LISTING HAZARDOUS WASTE

EPA Hazardous Waste No.	Hazardous Waste Constituents for Which Listed
K110	1,1-Dimethylhydrazine (UDMH).
K111	2,4-dinitrotoluene.
K112	2,4-toluenediamine, o-toluidine, p-toluidine, aniline.
K113	2,4-toluenediamine, o-toluidine, p-toluidine, aniline.
K114	2,4-toluenediamine, o-toluidine, p-toluidine.
K115	2,4-toluenediamine.
K116	Carbon tetrachloride, tetrachloroethylene, chloroform, phosgene.
K117	Ethylene dibromide.
K118	Ethylene dibromide.
K123	Ethylene thiourea.
K124	Ethylene thiourea.
K125	Ethylene thiourea.
K126	Ethylene thiourea.
K131	Dimethyl sulfate, methyl bromide.
K132	Methyl bromide.
K136	Ethylene dibromide.
K141	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene.
K142	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene.
K143	Benzene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene.
K144	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene.
K145	Benzene, benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, naphthalene.
K147	Benzene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene.
K148	Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene.
K149	Benzotrichloride, benzyl chloride, chloroform, chloromethane, chlorobenzene, 1,4-dichlorobenzene, hexachlorobenzene, pentachlorobenzene, 1,2,4,5-tetrachlorobenzene, toluene.
K150	Carbon tetrachloride, chloroform, chloromethane, 1,4-dichlorobenzene, hexachlorobenzene, pentachlorobenzene, 1,2,4,5-tetrachlorobenzene, 1,1,2,2-tetrachloroethane, tetrachloroethylene, 1,2,4-trichlorobenzene.
K151	Benzene, carbon tetrachloride, chloroform, hexachlorobenzene, pentachlorobenzene, toluene, 1,2,4,5-tetrachlorobenzene, tetrachloroethylene.
K156	Benomyl, carbaryl, carbendazim, carbofuran, carbosulfan, formaldehyde, methylene chloride, triethylamine.
K157	Carbon tetrachloride, formaldehyde, methyl chloride, methylene chloride, pyridine, triethylamine.

APPENDIX IV (continued)
BASIS FOR LISTING HAZARDOUS WASTE

EPA Hazardous Waste No.	Hazardous Waste Constituents for Which Listed
K158	Benomyl, carbendazim, carbofuran, carbosulfan, chloroform, methylene chloride.
K159	Benzene, butylate, eptc, molinate, pebulate, vernolate.
K160	Benzene, butylate, eptc, molinate, pebulate, vernolate.
K161	Antimony, arsenic, metam-sodium, ziram.

N.A. - Waste is hazardous because it fails the test for the characteristic of ignitability, corrosivity, or reactivity.

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
A2213	Ethanimidothioic acid, 2- (dimethylamino) -N-hydroxy-2-oxo-, methyl ester	30558-43-1	U394
Acetonitrile	Same	75-05-8	U003
Acetophenone	Ethanone, 1-phenyl-	98-86-2	U004
2-Acetylaminefluarone	Acetamide, N-9H-fluoren-2-yl-	53-96-3	U005
Acetyl chloride	Same	75-36-5	U006
1-Acetyl-2-thiourea	Acetamide, N-(aminothioxomethyl)-	591-08-2	P002
Acrolein	2-Propenal	107-02-8	P003
Acrylamide	2-Propenamide	79-06-1	U007
Acrylonitrile	2-Propenenitrile	107-13-1	U009
Aflatoxins	Same	1402-68-2	
Aldicarb	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	116-06-3	P070
Aldicarb sulfone	Propanal, 2-methyl-2- (methylsulfonyl) -, O-[(methylamino) carbonyl] oxime	1646-88-4	P203
Aldrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha, 8abeta)-	309-00-2	P004
Allyl alcohol	2-Propen-1-ol	107-18-6	P005
Allyl chloride	1-Propane, 3-chloro	107-18-6	
Aluminum phosphide	Same	20859-73-8	P006
4-Aminobiphenyl	[1,1'-Biphenyl]-4-amine	92-67-1	
5-(Aminomethyl)-3-isoxazolol	3(2H)-Isoxazolone, 5-(aminomethyl)-	2763-96-4	P007
4-Aminopyridine	4-Pyridinamine	504-24-5	P008
Amitrole	1H-1,2,4-Triazol-3-amine	61-82-5	U011
Ammonium vanadate	Vanadic acid, ammonium salt	7803-55-6	P119
Aniline	Benzenamine	62-53-3	U012
Antimony	Same	7440-36-0	
Antimony compounds, N.O.S.[1]			
Aramite	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	
Arsenic	Same	7440-38-2	
Arsenic compounds, N.O.S.[1]			
Arsenic acid	Arsenic acid H_3AsO_4	7778-39-4	P010
Arsenic pentoxide	Arsenic oxide As_2O_5	1303-28-2	P011
Arsenic trioxide	Arsenic oxide As_2O_3	1327-53-3	P012
Auramine	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl	492-80-8	U014
Azaserine	L-Serine, diazoacetate (ester)	115-02-6	U015

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Barban	Carbamic acid, (3-chlorophenyl) -, 4-chloro-2-butynyl ester	101-27-9	U280
Barium	Same	7440-39-3	
Barium compounds, N.O.S.[1]			
Barium cyanide	Same	542-62-1	P013
Bendiocarb	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate	22781-23-3	U278
Bendiocarb pheonol	1,3-Benzodioxol-4-ol, 2,2-dimethyl-,	22961-82-6	U364
Benomyl	Carbamic acid, [1- [(butylamino) carbonyl]-1H-benzimidazol-2-yl] -, methyl ester	17804-35-2	U271
Benz[c]acridine	Same	225-51-4	U016
Benz[a]anthracene	Same	56-55-3	U018
Benzal chloride	Benzene, (dichloromethyl)-	98-87-3	U017
Benzene	Same	71-43-2	U019
Benzenearsonic acid	Arsonic acid, phenyl-	98-05-5	
Benzidine	[1,1'-Biphenyl]-4,4'-diamine	92-87-5	U021
Benzo[b]fluoranthene	Benz[e]acephenanthrylene	205-99-2	
Benzo[j]fluoranthene	Same	205-82-3	
Benzo(k)fluoranthene	Same	207-08-9	
Benzo[a]pyrene	Same	50-32-8	U022
p-Benzoquinone	2,5-Cyclohexadiene-1,4-dione	106-51-4	U197
Benzotrichloride	Benzene, (trichloromethyl)-	98-07-7	U023
Benzyl chloride	Benzene, (chloromethyl)-	100-44-7	P028
Beryllium powder	Same	7440-41-7	P015
Beryllium compounds, N.O.S.[1]			
Bis (pentamethylene)-thiuram tetrasulfide	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-	120-54-7	U400
Bromoacetone	2-Propanone, 1-bromo-	598-31-2	P017
Bromoform	Methane, tribromo-	75-25-2	U225
4-Bromophenyl phenyl ether	Benzene, 1-bromo-4-phenoxy-	101-55-3	U030
Brucine	Strychnidin-10-one, 2,3-dimethoxy-	357-57-3	P018
Butyl benzyl phthalate	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	85-68-7	
Butylate	Carbamothioic acid, bis (2-methylpropyl)-, S-ethyl ester	2008-41-5	U392
Cacodylic acid	Arsinic acid, dimethyl-	75-60-5	U136
Cadmium	Same	7440-43-9	
Cadmium compounds, N.O.S.[1]			
Calcium chromate	Chromic acid H_2CrO_4, calcium salt	13765-19-0	U032

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Calcium cyanide	Calcium cyanide $Ca(CN)_2$	592-01-8	P021
Carbaryl	1-Napthalenol, methylcarbamate	63-25-2	U279
Carbendazim	Carbamicacid, 1H-benzimidazol-2-yl, methyl ester	10605-21-7	U372
Carbofuran	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate	1563-66-2	P127
Carbofuran phenol	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-	1563-38-8	U367
Carbon disulfide	Same	75-15-0	P022
Carbon oxyfluoride	Carbonic difluoride	353-50-4	U033
Carbon tetrachloride	Methane, tetrachloro-	56-23-5	U211
Carbosulfan	Carbamic acid, [(dibutylamino) thio] methyl-, 2,3-dihydro-2,2-dimethyl-7-b enzofuranyl ester	55285-14-8	P189
Chloral	Acetaldehyde, trichloro-	75-87-6	U034
Chlorambucil	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305-03-3	U035
Chlordane	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	57-74-9	U036
Chlordane (alpha and gamma isomers)			U036
Chlorinated benzenes, N.O.S.[1]			
Chlorinated ethane, N.O.S.[1]			
Chlorinated fluorocarbons, N.O.S.[1]			
Chlorinated naphthalene, N.O.S.[1]			
Chlorinated phenol, N.O.S.[1]			
Chlornaphazin	Naphthalenamine, N,N'-bis(2-chloroethyl)-	494-03-1	U026
Chloroacetaldehyde	Acetaldehyde, chloro-	107-20-0	P023
Chloroalkyl ethers, N.O.S.[1]			
p-Chloroaniline	Benzenamine, 4-chloro-	106-47-8	P024
Chlorobenzene	Benzene, chloro-	108-90-7	U037
Chlorobenzilate	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510-15-6	U038
p-Chloro-m-cresol	Phenol, 4-chloro-3-methyl-	59-50-7	U039
2-Chloroethyl vinyl ether	Ethene, (2-chloroethoxy)-	110-75-8	U042
Chloroform	Methane, trichloro-	67-66-3	U044
Chloromethyl methyl ether	Methane, chloromethoxy-	107-30-2	U046
beta-Chloronaphthalene	Naphthalene, 2-chloro-	91-58-7	U047
o-Chlorophenol	Phenol, 2-chloro-	95-57-8	U048

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
1-(o-Chlorophenyl)thiourea	Thiourea, (2-chlorophenyl)-	5344-82-1	P026
Chloroprene	1,3-Butadiene, 2-chloro-	126-99-8	
3-Chloropropionitrile	Propanenitrile, 3-chloro-	542-76-7	P027
Chromium	Same	7440-47-3	
Chromium compounds, N.O.S.[1]			
Chrysene	Same	218-01-9	U050
Citrus red No. 2	2-Naphthalenol, 1-[(2,5-dimethoxyphenyl)azo]-	6358-53-8	
Coal tar creosote	Same	8007-45-2	
Copper cyanide	Copper cyanide CuCN	544-92-3	P029
Copper dimethyldithiocarbamate	Copper, bis(dimethylcarbamodithioato-S,S')-,	137-29-1	U393
Creosote	Same		U051
Cresol (Cresylic acid)	Phenol, methyl-	1319-77-3	U052
Crotonaldehyde	2-Butenal	4170-30-3	U053
m-Cumenyl methylcarbamate	Phenol, 3-(methylethyl)-, methyl carbamate	64-00-6	P202
Cyanides (soluble salts and complexes) N.O.S.[1]			P030
Cyanogen	Ethanedinitrile	460-19-5	P031
Cyanogen bromide	Cyanogen bromide (CN)Br	506-68-3	U246
Cyanogen chloride	Cyanogen chloride (CN)Cl	506-77-4	P033
Cycasin	beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl	14901-08-7	
Cycloate	Carbamothioic acid, cyclophexylethyl-, S-ethyl ester	1134-23-2	U386
2-Cyclohexyl-4,6-dinitrophenol	Phenol, 2-cyclohexyl-4,6-dinitro-	131-89-5	P034
Cyclophosphamide	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide	50-18-0	U058
2,4-D	Acetic acid, (2,4-dichlorophenoxy)-	94-75-7	U240
2,4-D, salts, esters			U240
Daunomycin	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830-81-3	U059
DDD	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	72-54-8	U060
DDE	Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-	72-55-9	
DDT	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	50-29-3	U061
Dazomet	2H-1,3,5-thiadiazine-2-thione, tetrahydro-3,5-dimethyl	533-74-4	U366

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Diallate	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303-16-4	U062
Dibenz[a,h]acridine	Same	226-36-8	
Dibenz[a,j]acridine	Same	224-42-0	
Dibenz[a,h]anthracene	Same	53-70-3	U063
7H-Dibenzo[c,g]carbazole	Same	194-59-2	
Dibenzo[a,e]pyrene	Naphtho[1,2,3,4-def]chrysene	192-65-4	
Dibenzo[a,h]pyrene	Dibenzo[b,def]chrysene	189-64-0	
Dibenzo[a,i]pyrene	Benzo[rst]pentaphene	189-55-9	U064
1,2-Dibromo-3-chloropropane	Propane, 1,2-dibromo-3-chloro-	96-12-8	U066
Dibutyl phthalate	1,2-Benzenedicarboxylic acid, dibutyl ester	84-74-2	U069
o-Dichlorobenzene	Benzene, 1,2-dichloro-	95-50-1	U070
m-Dichlorobenzene	Benzene, 1,3-dichloro-	541-73-1	U071
p-Dichlorobenzene	Benzene, 1,4-dichloro-	106-46-7	U072
Dichlorobenzene, N.O.S.[1]	Benzene, dichloro-	25321-22-6	
3,3'-Dichlorobenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	91-94-1	U073
1,4-Dichloro-2-butene	2-Butene, 1,4-dichloro-	764-41-0	U074
Dichlorodifluoromethane	Methane, dichlorodifluoro-	75-71-8	U075
Dichloroethylene, N.O.S.[1]	Dichloroethylene	25323-30-2	
1,1-Dichloroethylene	Ethene, 1,1-dichloro-	75-35-4	U078
1,2-Dichloroethylene	Ethene, 1,2-dichlrol-, (E)-	156-60-5	U079
Dichloroethyl ether	Ethane, 1,1'oxybis[2-chloro-	111-44-4	U025
Dichloroisopropyl ether	Propane, 2,2'-oxybis[2-chloro-	108-60-1	U027
Dichloromethoxy ethane	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	111-91-1	U024
Dichloromethyl ether	Methane, oxybis[chloro-	542-88-1	P016
2,4-Dichlorophenol	Phenol, 2,4-dichloro-	120-83-2	U081
2,6-Dichlorophenol	Phenol, 2,6-dichloro-	87-65-0	U082
Dichlorophenylarsine	Arsonous dichloride, phenyl-	696-28-6	P036
Dichloropropane, N.O.S.[1]	Propane, dichloro-	26638-19-7	
Dichloropropanol, N.O.S.[1]	Propanol, dichloro-	26545-73-3	
Dichloropropene, N.O.S.[1]	1-Propene, dichloro-	26952-23-8	
1,3-Dichloropropene	1-Propene, 1,3-dichloro-	542-75-6	U084
Dieldrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7aoctahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-	60-57-1	P037
1,2:3,4-Diepoxybutane	2,2'-Bioxirane	1464-53-5	U085
Diethylarsine	Arsine, diethyl-	692-42-2	P038

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Diethylene glycol, dicarbamate	Ethanol, 2,2'-oxybis-, dicarbamate	5952-26-1	U395
1,4-Diethyleneoxide	1,4-Dioxane	123-91-1	U108
Diethylhexyl phthalate	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	117-81-7	U028
N,N'-Diethylhydrazine	Hydrazine, 1,2-diethyl-	1615-80-1	U086
O,O-Diethyl S-methyl dithiophosphate	Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288-58-2	U087
Diethyl-p-nitrophenyl phosphate	Phosphoric acid, diethyl 4-nitrophenyl ester	311-45-5	P041
Diethyl phthalate	1,2-Benzenedicarboxylic acid, diethyl ester	84-66-2	U088
O,O-Diethyl O-pyrazinyl phosphoro- thioate	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297-97-2	P040
Diethylstilbesterol	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-	56-53-1	U089
Dihydrosafrole	1,3-Benzodioxole, 5-propyl-	94-58-6	U090
Diisopropylfluorophosphate (DFP)	Phosphorofluoridic acid, bis(1-methylethyl) ester	55-91-4	P043
Dimethoate	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	60-51-5	P044
3,3'-Dimethoxybenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	119-90-4	U091
p-Dimethylaminoazobenzene	Benzenamine, N,N-dimethyl-4-(phenylazo)-	60-11-7	U093
7,12-Dimethylbenz[a]anthracene	Benz[a]anthracene, 7,12-dimethyl-	57-97-6	U094
3,3'-Dimethylbenzidine	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	119-93-7	U095
Dimethylcarbamoyl chloride	Carbamic chloride, dimethyl-	79-44-7	U097
1,1-Dimethylhydrazine	Hydrazine, 1,1-dimethyl-	57-14-7	U098
1,2-Dimethylhydrazine	Hydrazine, 1,2-dimethyl-	540-73-8	U099
alpha,alpha-Dimethylphenethylamine	Benzeneethanamine, alpha,alpha-dimethyl-	122-09-8	P046
2,4-Dimethylphenol	Phenol, 2,4-dimethyl-	105-67-9	U101
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3	U102
Dimethyl sulfate	Sulfuric acid, dimethyl ester	77-78-1	U103
Dimetilan	Carbamic acid, dimethyl-, 1- [(dimethylamino) carbonyl]-5-methyl-1H-pyrazol-3-yl ester	644-64-4	P191
Dinitrobenzene, N.O.S.[1]	Benzene, dinitro-	25154-54-5	
4,6-Dinitro-o-cresol	Phenol, 2-methyl-4,6-dinitro-	534-52-1	P047
4,6-Dinitro-o-cresol salts			P047
2,4-Dinitrophenol	Phenol, 2,4-dinitro-	51-28-5	P048
2,4-Dinitrotoluene	Benzene, 1-methyl-2,4-dinitro-	121-14-2	U105
2,6-Dinitrotoluene	Benzene, 2-methyl-1,3-dinitro-	606-20-2	U106
Dinoseb	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7	P020

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Di-n-octyl phthalate	1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	U017
Diphenylamine	Benzenamine, N-phenyl-	122-39-4	
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-	122-66-7	U109
Di-n-propylnitrosamine	1-Propanamine, N-nitroso-N-propyl-	621-64-7	U111
Disulfiram	Thioperoxydicarbonic diamide, tetraethyl	97-77-8	U403
Disulfoton	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	298-04-4	P039
Dithiobiuret	Thioimidodicarbonic diamide $[(H_2N)C(S)]_2NH$	541-53-7	P049
EPTC	Carbamothioic acid, dipropyl-, S-ethyl ester	759-94-4	U390
Endosulfan	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	115-29-7	P050
Endothall	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145-73-3	P088
Endrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-	72-20-8	P051
Endrin metabolites			P051
Epichlorohydrin	Oxirane, (chloromethyl)-	106-89-8	U041
Epinephrine	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-	51-43-4	P042
Ethyl carbamate (urethane)	Carbamic acid, ethyl ester	51-79-6	U238
Ethyl cyanide	Propanenitrile	107-12-0	P101
Ethyl Ziram	Zinc, bis(diethylcarbamodithioato-S,S')-	14324-55-1	U407
Ethylenebisdithiocarbamic acid	Carbamodithioic acid, 1,2-ethanediylbis-	111-54-6	U114
Ethylenebisdithiocarbamic acid, salts and esters			U114
Ethylene dibromide	Ethane, 1,2-dibromo-	106-93-4	U067
Ethylene dichloride	Ethane, 1,2-dichloro-	107-06-2	U077
Ethylene glycol monoethyl ether	Ethanol, 2-ethoxy-	110-80-5	U359
Ethyleneimine	Aziridine	151-56-4	P054
Ethylene oxide	Oxirane	75-21-8	U115
Ethylenethiourea	2-Imidazolidinethione	96-45-7	U116
Ethylidene dichloride	Ethane, 1,1-dichloro-	75-34-3	U076
Ethyl methacrylate	2-Propenoic acid, 2-methyl-, ethyl ester	97-63-2	U118
Ethyl methanesulfonate	Methanesulfonic acid, ethyl ester	62-50-0	U119
Famphur	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	52-85-7	P097
Ferbam	Iron, tris(dimethylcarbamodithioat-S,S')-,	14484-64-1	U396

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Fluoranthene	Same	206-44-0	U120
Fluorine	Same	7782-41-4	P056
Fluoroacetamide	Acetamide, 2-fluoro-	640-19-7	P057
Fluoroacetic acid, sodium salt	Acetic acid, fluoro-, sodium salt	62-74-8	P058
Formaldehyde	Same	50-00-0	U122
Formetanate hydrochloride	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino) carbonyl]oxy]phenyl]-, monohydrochloride	23422-53-9	P198
Formic acid	Same	64-18-6	U123
Formparanate	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino) carbonyl]oxy]phenyl]-.	17702-57-7	P197
Glycidylaldehyde	Oxiranecarboxyaldehyde	765-34-4	U126
Halomethanes, N.O.S.[1]			
Heptachlor	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	76-44-8	P059
Heptachlor epoxide	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aalpha,1bbeta,2alpha,5alpha, 5abeta,6beta,6aalpha)-	1024-57-3	
Heptachlor epoxide (alpha, beta, and gamma isomers)			
Heptachlorodibenzofurans.			
Heptachlorodibenzo-p-dioxins			
Hexachlorobenzene	Benzene, hexachloro-	118-74-1	U127
Hexachlorobutadiene	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87-68-3	U128
Hexachlorocyclopentadiene	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77-47-4	U130
Hexachlorodibenzo-p-dioxins			
Hexachlorodibenzofurans			
Hexachloroethane	Ethane, hexachloro-	67-72-1	U131
Hexachlorophene	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70-30-4	U132
Hexachloropropene	1-Propene, 1,1,2,3,3,3-hexachloro-	1888-71-7	U243
Hexaethyl tetraphosphate	Tetraphosphoric acid, hexaethyl ester	757-58-4	P062
Hydrazine	Same	302-01-2	U133
Hydrogen cyanide	Hydrocyanic acid	74-90-8	P063
Hydrogen fluoride	Hydrofluoric acid	7664-39-3	U134
Hydrogen sulfide	Hydrogen sulfide H_2S	7783-06-4	U135
Indeno[1,2,3-cd]pyrene	Same	193-39-5	U137
3-Iodo-2-propynyl n-butylcarbamate	Carbamic acid, butyl-, 3-iodo-2-propynyl ester	55406-53-6	U375

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Isobutyl alcohol	1-Propanol, 2-methyl-	78-83-1	U140
Isodrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro,(1alpha,4alpha,4abeta,5beta,8beta,-8abeta) -	465-73-6	P060
Isolan	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	119-38-0	P192
Isosafrole	1,3-Benzodioxole, 5-(1-propenyl)-	120-58-1	U141
Kepone	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-	143-50-0	U142
Lasiocarpine	2-Butenoic acid, 2-methyl-,7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1 - oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-	303-34-1	4143
Lead	Same	7439-92-1	
Lead compounds, N.O.S.[1]			
Lead acetate	Acetic acid, lead(2+) salt	301-04-2	U144
Lead phosphate	Phosphoric acid, lead(2+) salt (2:3)	7446-27-7	U145
Lead subacetate	Lead, bis(acetato-O)tetrahydroxytri-	1335-32-6	U146
Lindane	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-	58-89-9	U129
Maleic anhydride	2,5-Furandione	108-31-6	U147
Maleic hydrazide	3,6-Pyridazinedione, 1,2-dihydro-	123-33-1	U148
Malononitrile	Propanedinitrile	109-77-3	U149
Manganese dimethyldithiocarbamate	Manganese, bis(dimethylcarbamodithioato-S,S')-,	15339-36-3	P196
Melphalan	L-Phenylalanine, 4-[bis(2-chloroethyl)aminol]-	148-82-3	U150
Mercury	Same	7439-97-6	U151
Mercury compounds, N.O.S.[1]			
Mercury fulminate	Fulminic acid, mercury(2+) salt	628-86-4	P065
Metam Sodium	Carbamodithioic acid, methyl-, monosodiuim salt	137-42-8	U384
Methacrylonitrile	2-Propenenitrile, 2-methyl-	126-98-7	U152
Methapyrilene	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	91-80-5	U155
Methiocarb	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate	2032-65-7	P199
Methomyl	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	16752-77-5	P066
Methoxychlor	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	72-43-5	U247
Methyl bromide	Methane, bromo-	74-83-9	U029
Methyl chloride	Methane, chloro-	74-87-3	U045

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Methyl chlorocarbonate	Carbonochloridic acid, methyl ester	79-22-1	U156
Methyl chloroform	Ethane, 1,1,1-trichloro-	71-55-6	U226
3-Methylcholanthrene	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56-49-5	U157
4,4'-Methylenebis (2-chloroaniline)	Benzenamine, 4,4'-methylenebis[2-chloro-	101-14-4	U158
Methylene bromide	Methane, dibromo-	74-95-3	U068
Methylene chloride	Methane, dichloro-	75-09-2	U080
Methyl ethyl ketone (MEK)	2-Butanone	78-93-3	U159
Methyl ethyl ketone peroxide	2-Butanone, peroxide	1338-23-4	U160
Methyl hydrazine	Hydrazine, methyl-	60-34-4	P068
Methyl iodide	Methane, iodo-	74-88-4	U138
Methyl isocyanate	Methane, isocyanato-	624-83-9	P064
2-Methyllactonitrile	Propanenitrile, 2-hydroxy-2-methyl-	75-86-5	P069
Methyl methacrylate	2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	U162
Methyl methanesulfonate	Methanesulfonic acid, methyl ester	66-27-3	
Methyl parathion	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298-00-0	P071
Methylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56-04-2	U164
Metolcarb	Carbamic acid, methyl-, 3-methylphenyl ester	1129-41-5	P190
Mexacarbate	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)	315-18-4	P128
Mitomycin C	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5- methyl-, [1aS-(1aalpha,8beta,8aalpha,8balpha)]-.	50-07-7	U010
MNNG	Guanidine, N-methyl-N'-nitro-N-nitroso-	70-25-7	U163
Molinate	1H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester	2212-67-1	U365
Mustard gas	Ethane, 1,1'-thiobis[2-chloro-	505-60-2	
Naphthalene	Same	91-20-3	U165
1,4-Naphthoquinone	1,4-Naphthalenedione	130-15-4	U166
alpha-Naphthylamine	1-Naphthalenamine	134-32-7	U167
beta-Naphthylamine	2-Naphthalenamine	91-59-8	U168
alpha-Naphthylthiourea	Thiourea, 1-naphthalenyl-	86-88-4	P072
Nickel	Same	7440-02-0	
Nickel compounds, N.O.S.[1]			
Nickel carbonyl	Nickel carbonyl $Ni(CO)_4$, (T-4)-	13463-39-3	P073
Nickel cyanide	Nickel cyanide $Ni(CN)_2$	557-19-7	P074
Nicotine	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	54-11-5	P075

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Nicotine salts			P075
Nitric oxide	Nitrogen oxide NO	10102-43-9	P076
p-Nitroaniline	Benzenamine, 4-nitro-	100-01-6	P077
Nitrobenzene	Benzene, nitro-	98-95-3	U169
Nitrogen dioxide	Nitrogen oxide NO_2	10102-44-0	P078
Nitrogen mustard	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-	51-75-2	
Nitrogen mustard, hydrochloride salt			
Nitrogen mustard N-oxide	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-, N-oxide	126-85-2	
Nitrogen mustard, N-oxide, hydrochloride salt			
Nitroglycerin	1,2,3-Propanetriol, trinitrate	55-63-0	P081
p-Nitrophenol	Phenol, 4-nitro-	100-02-7	U170
2-Nitropropane	Propane, 2-nitro-	79-46-9	U171
Nitrosamines, N.O.S.[1]		35576-91-1D	
N-Nitrosodi-n-butylamine	1-Butanamine, N-butyl-N-nitroso-	924-16-3	U172
N-Nitrosodiethanolamine	Ethanol, 2,2'-(nitrosoimino)bis-	1116-54-7	U173
N-Nitrosodiethylamine	Ethanamine, N-ethyl-N-nitroso-	55-18-5	U174
N-Nitrosodimethylamine	Methanamine, N-methyl-N-nitroso-	62-75-9	P082
N-Nitroso-N-ethylurea	Urea, N-ethyl-N-nitroso-	759-73-9	U176
N-Nitrosomethylethylamine	Ethanamine, N-methyl-N-nitroso-	10595-95-6	
N-Nitroso-N-methylurea	Urea, N-methyl-N-nitroso-	684-93-5	U177
N-Nitroso-N-methylurethane	Carbamic acid, methylnitroso-, ethyl ester	615-53-2	U178
N-Nitrosomethylvinylamine	Vinylamine, N-methyl-N-nitroso-	4549-40-0	P084
N-Nitrosomorpholine	Morpholine, 4-nitroso-	59-89-2	
N-Nitrosonornicotine	Pyridine, 3-(1-nitroso-2-pyrrolidinyl)-, (S)-	16543-55-8	
N-Nitrosopiperidine	Piperidine, 1-nitroso-	100-75-4	U179
N-Nitrosopyrrolidine	Pyrrolidine, 1-nitroso-	930-55-2	U180
N-Nitrososarcosine	Glycine, N-methyl-N-nitroso-	13256-22-9	
5-Nitro-o-toluidine	Benzenamine, 2-methyl-5-nitro-	99-55-8	U181
Octamethylpyrophosphoramide	Diphosphoramide, octamethyl-	152-16-9	P085
Osmium tetroxide	Osmium oxide OsO_4, (T-4)-	20816-12-0	P087
Oxamyl	Ethanimidothioc acid, 2-(dimethylamino)-N-[[(methylamino)carbonyl]oxy]-2-oxo-, methyl ester	23135-22-0	P194
Paraldehyde	1,3,5-Trioxane, 2,4,6-trimethyl-	123-63-7	U182
Parathion	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56-38-2	P089

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Pebulate	Carbamothioic acid, butylethyl-, S-propyl ester	1114-71-2	U391
Pentachlorobenzene	Benzene, pentachloro-	608-93-5	U183
Pentachlorodibenzo-p-dioxins			
Pentachlorodibenzofurans			
Pentachloroethane	Ethane, pentachloro-	76-01-7	U184
Pentachloronitrobenzene (PCNB)	Benzene, pentachloronitro-	82-68-8	U185
Pentachlorophenol	Phenol, pentachloro-	87-86-5	See F027
Phenacetin	Acetamide, N-(4-ethoxyphenyl)-	62-44-2	U187
Phenol	Same	108-95-2	U188
Phenylenediamine	Benzenediamine	25265-76-3	
Phenylmercury acetate	Mercury, (acetato-O)phenyl-	62-38-4	P092
Phenylthiourea	Thiourea, phenyl-	103-85-5	P093
Phosgene	Carbonic dichloride	75-44-5	P095
Phosphine	Same	7803-51-2	P096
Phorate	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	298-02-2	P094
Phthalic acid esters, N.O.S.[1]			
Phthalic anhydride	1,3-Isobenzofurandione	85-44-9	U190
Physostigmine	Pyrrolo[2,3-b]indol-5-01, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-	57-47-6	P204
Physostigmine salicylate	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b]indol-5-yl methylcarbamate ester (1:1).	57-64-7	P188
2-Picoline	Pyridine, 2-methyl-	109-06-8	U191
Polychlorinated biphenyls, N.O.S.[1]			
Potassium cyanide	Potassium cyanide K(CN)	151-50-8	P098
Potassium dimethyl-dithiocarbamate arbamate	Carbamodithioc acid, dimethyl, potassium salt	128-03-0	U383
Potassium hyroxymethyl-n-methyl-dithiocarbamate	Carbamodithioc acid, (hydroxymethyl)methyl-, monopotassium salt	51026-28-9	U378
Potassium n-methyldithiocarbamate	Carbamodithioc acid, methyl-monopotassium salt	137-41-7	U377
Potassium pentachlorophenate	Pentachlorophenol, potassium salt	7778-73-6	
Potassium silver cyanide	Argentate(1-), bis(cyano-C)-, potassium	506-61-6	P099
Promecarb	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate	2631-37-0	P201

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Pronamide	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	23950-58-5	U192
1,3-Propane sultone	1,2-Oxathiolane, 2,2-dioxide	1120-71-4	U193
Propham	Carbamic acid, phenyl-,1-methylethyl ester	122-42-9	U373
n-Propylamine	1-Propanamine	107-10-8	U194
Propargyl alcohol	2-Propyn-1-ol	107-19-7	P102
Propylene dichloride	Propane, 1,2-dichloro-	78-87-5	U083
1,2-Propylenimine	Aziridine, 2-methyl-	75-55-8	P067
Propylthiouracil	4(1H)-Pyrimidinone, 2,3-dihydro-6-propyl-2-thioxo-	51-52-5	
Propoxur	Phenol, 2-(1-methylethoxy)-,methylcarbamate	114-26-1	U411
Prosulfocarb	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	52888-80-9	U387
Pyridine	Same	110-86-1	U196
Reserpine	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-smethyl ester, (3beta,16beta,17alpha,18beta,20alpha)-	50-55-5	U200
Resorcinol	1,3-Benzenediol	108-46-3	U201
Saccharin	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81-07-2	U202
Saccharin salts			U202
Safrole	1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	U203
Selenium	Same	7782-49-2	
Selenium compounds, N.O.S.[1]			
Selenium dioxide	Selenious acid	7783-00-8	U204
Selenium sulfide	Selenium sulfide SeS_2	7488-56-4	U205
Selenium, tetrakis (dimethyl-dithiocarbamate	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid	144-34-3	U376
Selenourea	Same	630-10-4	P103
Silver	Same	7440-22-4	
Silver compounds, N.O.S.[1]			
Silver cyanide	Silver cyanide Ag(CN)	506-64-9	P104
Silvex (2,4,5-TP)	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	See F027
Sodium cyanide	Sodium cyanide Na(CN)	143-33-9	P106
Sodium dibutyldithiocarbamate	Carbamodithioic acid, dibutyl, sodium salt	136-30-1	U379
Sodium diethyldithiocarbamate	Carbamodithioic acid, diethyl-, sodium salt	148-18-5	U381
Sodium dimethyldithiocarbamate	Carbamodithioic acid, dimethyl-, sodium salt	128-04-1	U382
Sodium pentachlorophenate	Pentachlorophenol, sodium salt	131-52-2	

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Streptozotocin	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)carbonyl]amino]-	18883-66-4	U206
Strychnine	Strychnidin-10-one	57-24-9	P108
Strychnine salts			P108
Sulfallate	Carbamodithioic acid, diethyl-, 2-chloro-2-propenyl ester	95-06-7	U277
TCDD	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	1746-01-6	
Tetrabutylthiuram disulfide	Thioperoxydicarbonic diamide, tetrabutyl	1634-02-2	U402
Tetrabutylthiuram monosulfide	Bis (dimethylthiocarbamoyl) sulfide	97-74-5	U401
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	95-94-3	U207
Tetrachlorodibenzo-p-dioxins			
Tetrachlorodibenzofurans			
Tetrachloroethane, N.O.S.[1]	Ethane, tetrachloro-, N.O.S.	25322-20-7	
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	630-20-6	U208
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,2-tetrachloro-	79-34-5	U209
Tetrachloroethylene	Ethene, tetrachloro-	127-18-4	U210
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	58-90-2	See F027
2,3,4,6-Tetrachlorophenol, potassium salt	Same	53535-27-6	
2,3,4,6-Tetrachlorophenol, sodium salt	Same	25567-55-9	
Tetraethyldithiopyrophosphate	Thiodiphosphoric acid, tetraethyl ester	3689-24-5	P109
Tetraethyl lead	Plumbane, tetraethyl-	78-00-2	P110
Tetraethyl pyrophosphate	Diphosphoric acid, tetraethyl ester	107-49-3	P111
Tetranitromethane	Methane, tetranitro-	509-14-8	P112
Thallium	Same	7440-28-0	
Thallium compounds, N.O.S.[1]			
Thallic oxide	Thallium oxide Tl_2O_3	1314-32-5	P113
Thallium(I) acetate	Acetic acid, thallium(1+) salt	563-68-8	U214
Thallium(I) carbonate	Carbonic acid, dithallium(1+) salt	6533-73-9	U215
Thallium(I) chloride	Thallium chloride TlCl	7791-12-0	U216
Thallium(I) nitrate	Nitric acid, thallium(1+) salt	10102-45-1	U217
Thallium selenite	Selenious acid, dithallium(1+) salt	12039-52-0	P114
Thallium(I) sulfate	Sulfuric acid, dithallium(1+) salt	7446-18-6	P115
Thioacetamide	Ethanethioamide	62-55-5	U218

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Thiodicarb	Ethanimidothioic acid, N,N'-[thiobis [(methylimino) carbonyloxy]] bis-, dimethyl ester	59669-26-0	U410
Thiofanox	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime	39196-18-4	P045
Thiomethanol	Methanethiol	74-93-1	U153
Thiophanate-methyl	Carbamic acid, [1,2-phyenylenebis (iminocarbonothioyl)] bis-, dimethyl ester	23564-05-8	U409
Thiophenol	Benzenethiol	108-98-5	P014
Thiosemicarbazide	Hydrazinecarbothioamide	79-19-6	P116
Thiourea	Same	62-56-6	U219
Thiram	Thioperoxydicarbonic diamide $[(H_2N)C(S)]_2S_2$, tetramethyl-	137-26-8	U244
Tirpate	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino) carbonyl] oxime.	26419-73-8	P185
Toluene	Benzene, methyl-	108-88-3	U220
Toluenediamine	Benzenediamine, ar-methyl-	25376-45-8	U221
Toluene-2,4-diamine	1,3-Benzenediamine, 4-methyl-	95-80-7	
Toluene-2,6-diamine	1,3-Benzenediamine, 2-methyl-	823-40-5	
Toluene-3,4-diamine	1,2-Benzenediamine, 4-methyl-	496-72-0	
Toluene diisocyanate	Benzene, 1,3-diisocyanatomethyl-	26471-62-5	U223
o-Toluidine	Benzenamine, 2-methyl-	95-53-4	U328
o-Toluidine hydrochloride	Benzenamine, 2-methyl-, hydrochloride	636-21-5	U222
p-Toluidine	Benzenamine, 4-methyl-	106-49-0	U353
Toxaphene	Same	8001-35-2	P123
Triallate	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester	2303-17-5	U389
1,2,4-Trichlorobenzene	Benzene, 1,2,4-trichloro-	120-82-1	
1,1,2-Trichloroethane	Ethane, 1,1,2-trichloro-	79-00-5	U227
Trichloroethylene	Ethene, trichloro-	79-01-6	U228
Trichloromethanethiol	Methanethiol, trichloro-	75-70-7	P118
Trichloromonofluoromethane	Methane, trichlorofluoro-	75-69-4	U121
2,4,5-Trichlorophenol	Phenol, 2,4,5-trichloro-	95-95-4	See F027
2,4,6-Trichlorophenol	Phenol, 2,4,6-trichloro-	88-06-2	See F027
2,4,5-T	Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5	See F027
Trichloropropane, N.O.S.[1]		25735-29-9	
1,2,3-Trichloropropane	Propane, 1,2,3-trichloro-	96-18-4	
Triethylamine	Ethanamine, N,N-diethyl-	121-44-8	U404
O,O,O-Triethyl phosphorothioate	Phosphorothioic acid, O,O,O-triethyl ester	126-68-1	
1,3,5-Trinitrobenzene	Benzene, 1,3,5-trinitro-	99-35-4	U234

APPENDIX V
HAZARDOUS CONSTITUENTS

Common Name	Chemical Abstracts Name	Chemical Abstracts No.	Hazardous Waste No.
Tris(1-aziridinyl) phosphine sulfide	Aziridine, 1,1',1"-phosphinothioylidynetris-	52-24-4	
Tris(2,3-dibromopropyl) phosphate	1-Propanol, 2,3-dibromo-, phosphate (3:1)	126-72-7	U235
Trypan blue	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'diyl)bis(azo)]-bis[5-amino-4-hydroxy-, tetrasodium salt.	72-57-1	U236
Uracil mustard	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66-75-1	U237
Vanadium pentoxide	Vanadium oxide V_2O_5	1314-62-1	P120
Vernolate	Carbamothioc acid, dipropyl-, S-propyl ester	1929-77-7	U385
Vinyl chloride	Ethene, chloro-	75-01-4	U043
Warfarin	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations less than 0.3%	81-81-2	U248
Warfarin	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%	81-81-2	P001
Warfarin salts, when present at concentrations less than 0.3%			U248
Warfarin salts, when present at concentrations greater than 0.3%			P001
Zinc cyanide	Zinc cyanide $Zn(CN)_2$	557-21-1	P121
Zinc phosphide	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10%	1314-84-7	P122
Zinc phosphide	Zinc phosphide Zn_3P_2, when present at concentrations of 10% or less	1314-84-7	U249
Ziram	Zinc, bis(dimethylcarbamodithioato -S,S')-, (T-4)-	137-30-4	P205

FOOTNOTE: [1]The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

APPENDIX VI
EXCLUDED UNDER SECTIONS 33-24-01-06 AND 33-24-01-08

Table 1. Wastes Excluded from Nonspecific Sources

Facility	Address	Waste Description
(Reserved)		

Table 2. Wastes Excluded from Specific Sources

Facility	Address	Waste Description
(Reserved)		

Table 3. Wastes Excluded from Commercial Chemical Products, Off-Specification Species, Container Residues, and Soil Residues Thereof

Facility	Address	Waste Description
(Reserved)		

APPENDIX VII [Reserved]
METHOD OF ANALYSIS FOR CHLORINATED DIBENZO-P-DIOXINS AND DIBENZOFURANS[1,2,3,4]

Method 8280

1. **Scope and Application**

1.1 This method measures the concentration of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans in chemical wastes including still bottoms, filter aids, sludges, spent carbon, and reactor residues, and in soils.

1.2 The sensitivity of this method is dependent upon the level of interferences.

1.3 This method is recommended for use only by analysts experienced with residue analysis and skilled in mass spectral analytical techniques.

1.4 Because of the extreme toxicity of these compounds, the analyst must take necessary precautions to prevent exposure to himself, or to others, of materials known or believed to contain chlorinated dibenzo-p-dioxins or chlorinated dibenzofurans.

2. **Summary of the Method**

2.1 This method is an analytical extraction cleanup procedure, and capillary column gas chromatograph low resolution mass spectrometry method, using capillary column gas chromatograph/mass spectrometer conditions and internal standard techniques, which allow for the measurement of pentachlorinated dibenzo-p-dioxins and pentachlorinated dibenzofurans in the extract.

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[1] This method is appropriate for the analysis of tetra, penta, and hexachlorinated dibenzo-p-dioxins and dibenzofurans.

[2] Analytical protocol for determination of tetrachlorinated dibenzo-p-dioxins in phenolic chemical wastes and soil samples obtained from the proximity of chemical dumps. T. O. Tiernan and M. Taylor, Brehm Laboratory, Wright State University, Dayton, Ohio 45435.

[3] Analytical protocol for determination of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans in river water. T. O. Tiernan and M. Taylor, Brehm Laboratory, Wright State University, Dayton, Ohio 45435.

[4] In general, the techniques that should be used to handle these materials are those which are followed for radioactive or infectious laboratory materials. Assistance in evaluating laboratory practices may be obtained from industrial hygienists and persons specializing in safe laboratory practices. Typical infectious waste incinerators are probably not satisfactory devices for disposal of materials highly contaminated with chlorinated dibenzo-p-dioxins or chlorinated dibenzofurans. Safety instructions are outlined in environmental protection agency Test Method 613(4.0).

See also: 1) "Program for monitoring potential contamination in the laboratory following the handling and analyses of chlorinated dibenzo-p-dioxins and dibenzofurans" by F. D. Hileman et al., In: Human and Environmental Risks of Chlorinated Dioxins and Related Compounds, R. E. Tucker, et al. eds., Plenum Publishing Corp., 1983. 2) Safety procedures outlined in environmental protection agency Method 613, Federal Register volume 44, No. 233, December 3, 1979.

2.2 If interferences are encountered, the method provides selected general purpose cleanup procedures to aid the analyst in their elimination.

3. **Interferences**

3.1 Solvents, reagents, glassware, and other sample processing hardware may yield discrete artifacts or elevated baselines, or both, causing misinterpretation of gas chromatograms. All of these materials must be demonstrated to be free from interferences under the conditions of the analysis by running method blanks. Specific selection of reagents and purification of solvents by distillation in all glass systems may be required.

3.2 Interferences coextracted from the samples will vary considerably from source to source, depending upon the diversity of the industry being sampled. Pentachlorinated dibenzo-p-dioxins is often associated with other interfering chlorinated compounds such as PCBs which may be at concentrations several orders of magnitude higher than that of pentachlorinated dibenzo-p-dioxins. While general cleanup techniques are provided as part of this method, unique samples may require additional cleanup approaches to achieve the sensitivity stated in Table 1.

3.3 The other isomers of tetrachlorinated dibenzo-p-dioxins may interfere with the measurement of 2,3,7,8-tetrachlorinated dibenzo-p-dioxins. Capillary column gas chromatography is required to resolve those isomers that yield virtually identical mass fragmentation patterns.

4. **Apparatus and Materials**

4.1 Sampling equipment for discrete or composite sampling.

4.1.1 Grab sample bottle -- amber glass, one liter or one quart volume. French or boston round design is recommended. The container must be washed and solvent rinsed before use to minimize interferences.

4.1.2 Bottle caps -- threaded to screw onto the sample bottles. Caps must be lined with teflon. Solvent washed foil, used with the shiny side towards the sample, may be substituted for the teflon if sample is not corrosive.

4.1.3 Compositing equipment -- automatic or manual composing system. No tygon or rubber tubing may be used, and the system must incorporate glass sample containers for the collection of a minimum of two hundred fifty milliliters. Sample containers must be kept refrigerated after sampling.

4.2 Water bath -- heated, with concentric ring cover, capable of temperature control (±2 degrees Celsius). The bath should be used in a hood.

4.3 Gas chromatograph/mass spectrometer data system.

4.3.1 Gas chromatograph: An analytical system with a temperature programmable gas chromatograph and all required accessories including syringes, analytical columns, and gases.

4.3.2 Column: SP-2250 coated on a thirty meter long x twenty five hundredths millimeters inside diameter glass column (Supelco No. 2-3714 or equivalent). Glass capillary column conditions: Helium carrier gas at thirty centimeters per second linear velocity run splitless. Column temperature is two hundred ten degrees Celsius.

4.3.3Mass spectrometer: Capable of scanning from thirty five to four hundred fifty atomic mass unit every one second or less, utilizing seventy volts (nominal) electron energy in the electron impact ionization mode and producing a mass spectrum which meets all the criteria in Table 2 when fifty nanograms of decafluorotriphenyl-phosphine is injected through the gas chromatograph inlet. The system must also be capable of selected ion monitoring for at least four ions simultaneously, with a cycle time of one second or less. Minimum integration time for selected ion monitoring is one hundred milliseconds. Selected ion monitoring is verified by injecting fifteen thousandths nanogram of tetrachlorinated dibenzo-p-dioxin Cl^{37} to give a minimum signal to noise ratio of five to one at mass three hundred twenty eight.

4.3.4Gas chromatograph/mass spectrometer interface: Any gas chromatograph to mass spectrometer interface that gives acceptable calibration points at fifty nanograms per injection for each compound of interest and achieves acceptable tuning performance criteria (see sections 6.1-6.3) may be used. Gas chromatograph to mass spectrometer interfaces constructed of all glass or glass lined materials are recommended. Glass can be deactivated by silanizing with dichlorodimethylsilane. The interface must be capable of transporting at least ten nanograms of the components of interest from the gas chromatograph to the mass spectrometer.

4.3.5Data system: A computer system must be interfaced to the mass spectrometer. The system must allow the continuous acquisition and storage on machine readable media of all mass spectra obtained throughout the duration of the chromatographic program. The computer must have software that can search any gas chromatograph/mass spectrometer data file for ions of a specific mass and that can plot such ion abundances versus time or scan number. This type of plot is defined as an extracted ion current profile. Software must also be able to integrate the abundance, in any extracted ion current profile, between specified time or scan number limits.

4.4Pipettes Disposable, Pasteur, one hundred fifty millimeters long x five millimeters inside diameter (Fisher Scientific Co., No. 13-678-6A or equivalent).

4.5Flint glass bottle (teflon-lined screwcap).

4.6Reacti vial (silanized) (Pierce Chemical Co.).

5. **Reagents**

5.1Potassium hydroxide (American Chemical Society), two percent in distilled water.

5.2Sulfuric acid (American Chemical Society), concentrated.

5.3Methylene chloride, hexane, benzene, petroleum ether, methanol, tetradecane pesticide quality or equivalent.

5.4Prepare stock standard solutions of tetrachlorinated dibenzo p-dioxins and ^{37}Cl TCDD (molecular weight three hundred twenty eight) in a glove box. The stock solutions are stored in a glove box, and checked frequently for signs of degradation or evaporation, especially just prior to the preparation of working standards.

5.5 Alumina basic, Woelm; eighty/two hundred mesh. Before use activate overnight at six hundred degrees Celsius, cool to room temperature in a desiccator.

5.6 Prepurified nitrogen gas.

6. Calibration

6.1 Before using any cleanup procedure, the analyst must process a series of calibration standards through the procedure to validate elution patterns and the absence of interferences from reagents.

6.2 Prepare gas chromatograph/mass spectrometer calibration standards for the internal standard technique that will allow for measurement of relative response factors of at least three CDD/^{37}CDD ratios. Thus, for tetrachlorinated dibenzo p-dioxins, at least three T CDD/^{37}Cl TCDD and TCDF/^{37}Cl TCDF must be determined.[5] The ^{37}Cl-TCDD/F concentration in the standard should be fixed and selected to yield a reproducible response at the most sensitive setting of the mass spectrometer. Response factors for pentachlorinated dibenzo-p-dioxins and hexachlorinated dibenzo-p-dioxins may be determined by measuring the response of the tetrachloro-labeled compounds relative to that of the unlabeled 1,2,3,4- or 2,3,7,8-tetrachlorinated dibenzo-p-dioxins, 1,2,3,4,7-pentachlorinated dibenzo-p-dioxins or 1,2,3,4,7,8-hexachlorinated dibenzo-p-dioxins, which are commercially available.[6]

6.3 Assemble the necessary gas chromatograph/mass spectrometer apparatus and establish operating parameters equivalent to those indicated in Section 11.1 of this method. Calibrate the gas chromatograph/mass spectrometer system according to Eichelberger, et al. (1975) by the use of decafluorotriphenyl phosphine. By injecting calibration standards, establish the response factors for chlorinated dibenzo-p-dioxins vs. ^{37}Cl-TCDD, and for chlorinated dibenzofurans vs. ^{37}Cl-TCDF. The detection limit provided in Table 1 should be verified by injecting fifteen thousandths nanogram of ^{37}Cl-TCDD which should give a minimum signal to noise ratio of five to one at mass three hundred twenty eight.

7. Quality Control

7.1 Before processing any samples, the analyst should demonstrate through the analysis of a distilled water method blank, that all glassware and reagents are interference-free. Each time a set of samples is extracted, or there is a change in reagents, a method blank should be processed as a safeguard against laboratory contamination.

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[5] ^{37}Cl labeled 2,3,7,8-TCDD and 2,3,7,8-TCDF are available from K.O.R. Isotopes, and Cambridge Isotopes, Inc., Cambridge, Massachusetts. Proper standardization requires the use of a specific labeled isomer for each congener to be determined. However, the only labeled isomers readily available are ^{37}Cl-2,3,7,8-TCDD and ^{37}Cl-2,3,7,8-TCDF. This method therefore uses these isomers as surrogates for the chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans. When other labeled chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans are available, their use will be required.

[6] This procedure is adopted because standards are not available for most of the chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans, and assumes that all the congeners will show the same response as the unlabeled congener used as a standard. Although this assumption may not be true in all cases, the error will be small.

7.2 Standard quality assurance practices must be used with this method. Field replicates must be collected to measure the precision of the sampling technique. Laboratory replicates must be analyzed to establish the precision of the analysis. Fortified samples must be analyzed to establish the accuracy of the analysis.

8. **Sample Collection, Preservation, and Handling**

8.1 Grab and composite samples must be collected in glass containers. Conventional sampling practices should be followed, except that the bottle must not be prewashed with sample before collection. Composite samples should be collected in glass containers in accordance with the requirements of the Resource Conservation and Recovery Act program. Sampling equipment must be free of tygon and other potential sources of contamination.

8.2 The samples must be iced or refrigerated from the time of collection until extraction. Chemical preservatives should not be used in the field unless more than twenty-four hours will elapse before delivery to the laboratory. If an aqueous sample is taken and the sample will not be extracted within forty-eight hours of collection, the sample should be adjusted to a pH range of 6.0-8.0 with sodium hydroxide or sulfuric acid.

8.3 All samples must be extracted within seven days and completely analyzed within thirty days of collection.

9. **Extraction and Cleanup Procedures**

9.1 Use an aliquot of one to ten grams sample of the chemical waste or soil to be analyzed. Soils should be dried using a stream of prepurified nitrogen and pulverized in a ball mill or similar device. Perform this operation in a clear area with proper hood space. Transfer the sample to a tared one hundred twenty five milliliters flint glass bottle (teflon-lined screwcap) and determine the weight of the sample. Add an appropriate quantity of ^{37}Cl-labeled 2,3,7,8-TCDD (adjust the quantity according to the required minimum detectable concentration), which is employed as an internal standard.

9.2 Extraction

9.2.1 Extract chemical waste samples by adding ten milliliters methanol, forty milliliters petroleum ether, fifty milliliters doubly distilled water, and then shaking the mixture for two minutes. Tars should be completely dissolved in any of the recommended neat solvents. Activated carbon samples must be extracted with benzene using method 3540 in SW-846 (Test Methods for Evaluating Solid Waste - Physical/Chemical Methods, available from G.P.O. Stock #055-022-81001-2). Quantitatively transfer the organic extract or dissolved sample to a clean two hundred fifty milliliters flint glass bottle (teflon-lined screwcap), add fifty milliliters doubly distilled water and shake for two minutes. Discard the aqueous layer and proceed with Step 9.3.

9.2.2 Extract soil samples by adding forty milliliters of petroleum ether to the sample, and then shaking for twenty minutes. Quantitatively transfer the organic extract to a clean two hundred fifty milliliters flint glass bottle (teflon-lined screwcap), add fifty milliliters doubly distilled water and shake for two minutes. Discard the aqueous layer and proceed with Step 9.3.

9.3Wash the organic layer with fifty milliliters of twenty percent aqueous potassium hydroxide by shaking for ten minutes and then remove and discard the aqueous layer.

9.4Wash the organic layer with fifty milliliters of doubly distilled water by shaking for two minutes, and discard the aqueous layer.

9.5Cautiously add fifty milliliters concentrated sulfuric acid and shake for ten minutes. Allow the mixture to stand until layers separate (approximately ten minutes), and remove and discard the acid layer. Repeat acid washing until no color is visible in the acid layer.

9.6Add fifty milliliters of doubly distilled water to the organic extract and shake for two minutes. Remove and discard the aqueous layer and dry the organic layer by adding ten grams of anhydrous sodium sulfate.

9.7Concentrate the extract to incipient dryness by heating in a fifty-five degree Celsius water bath and simultaneously flowing a stream of prepurified nitrogen over the extract. Quantitatively transfer the residue to an alumina microcolumn fabricated as follows:

9.7.1Cut off the top section of a ten milliliters disposable pyrex pipette at the four milliliters mark and insert a plug of silanized glass wool into the tip of the lower portion of the pipette.

9.7.2Add two and eight tenths grams of Woelm basic alumina (previously activated at six hundred degrees Celsius overnight and then cooled to room temperature in a desiccator just prior to use).

9.7.3Transfer sample extract with a small volume of methylene chloride.

9.8Elute the microcolumn with ten milliliters of three percent methylene chloride in hexane followed by fifteen milliliters of twenty percent methylene chloride in hexane and discard these effluents. Elute the column with fifteen milliliters of fifty percent methylene chloride in hexane and concentrate this effluent (fifty-five degrees Celsius water bath, stream of prepurified nitrogen) to about three tenths to five tenths milliliters.

9.9Quantitatively transfer the residue (using methylene chloride to rinse the container) to a silanized Reacti-Vial (Pierce Chemical Co.). Evaporate, using a stream of prepurified nitrogen, almost to dryness, rinse the walls of the vessel with approximately five tenths milliliters methylene chloride, evaporate just to dryness, and tightly cap the vial. Store the vial at five degrees Celsius until analysis, at which time the sample is reconstituted by the addition of tridecane.

9.10Approximately one hour before gas chromatograph/mass spectrometer (high resolution gas chromatograph-low resolution spectrometer) analysis, dilute the residue in the microreaction vessel with an appropriate quantity of tridecane. Gently swirl the tridecane on the lower portion of the vessel to ensure dissolution of the chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans. Analyze a sample by gas chromatograph/electron capture to provide insight into the complexity of the problem, and to determine the manner in which the mass spectrometer should be used. Inject an appropriate aliquot of the sample into the gas chromatograph/mass spectrometer instrument, using a syringe.

9.11If, upon preliminary gas chromatograph/mass spectrometer analysis, the sample appears to contain interfering substances which obscure the

analyses for chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans, high-performance liquid chromatographic cleanup of the extract is accomplished, prior to further gas chromatograph/mass spectrometer analysis.

10. **High Performance Liquid Chromatographic Cleanup Procedure**[7]

10.1 Place approximately two milliliters of hexane in a fifty milliliter flint glass sample bottle fitted with a teflon-lined cap.

10.2 At the appropriate retention time, position sample bottle to collect the required fraction.

10.3 Add two milliliters of five percent weight/volume sodium carbonate to the sample fraction collected and shake for one minute.

10.4 Quantitatively remove the hexane layer (top layer) and transfer to a microreaction vessel.

10.5 Concentrate the fraction to dryness and retain for further analysis.

11. **Gas Chromatograph/Mass Spectrometer Analysis**

11.1 The following column conditions are recommended: Glass capillary column conditions: SP-2250 coated on a thirty-meter long x twenty-five hundredths millimeter inside diameter glass column (Supelco No. 2-3714, or equivalent) with helium carrier gas at thirty centimeters per second linear velocity, run splitless. Column temperature is two hundred ten degrees Celsius. Under these conditions the retention time for tetrachlorinated dibenzo-p-dioxins is about nine and one-half minutes. Calibrate the system daily with, a minimum, three injections of standard mixtures.

11.2 Calculate response factors for standards relative to ^{37}Cl-TCDD/F (see Section 12).

11.3 Analyze samples with selected ion monitoring of at least two ions from Table 3. Proof of the presence of chlorinated dibenzo-p-dioxins or chlorinated dibenzofurans exists if the following conditions are met:

11.3.1 The retention time of the peak in the sample must match that in the standard, within the performance specifications of the analytical system.

11.3.2 The ratio of ions must agree within ten percent with that of the standard.

11.3.3 The retention time of the peak maximum for the ions of interest must exactly match that of the peak.

11.4 Quantitate the chlorinated dibenzo-p-dioxin and chlorinated dibenzofuran peaks from the response relative to the ^{37}Cl-TCDD/F internal standards. Recovery of the internal standard should be greater than fifty percent.

11.5 If a response is obtained for the appropriate set of ions, but is outside the expected ratio, a coeluting impurity may be suspected. In this case,

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[7] For cleanup see also method #8320 or #8330, SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (1982).

another set of ions characteristic of the chlorinated dibenzo-p-dioxin/chlorinated dibenzofuran molecules should be analyzed. For tetrachlorinated dibenzo-p-dioxins a good choice of ions is m/e two hundred fifty-seven and m/e two hundred fifty-nine. For tetrachlorinated dibenzofurans a good choice of ions is m/e two hundred forty-one and two hundred forty-three. These ions are useful in characterizing the molecular structure to tetrachlorinated dibenzo-p-dioxins and tetrachlorinated dibenzofurans. For analysis of tetrachlorinated dibenzo-p-dioxins good analytical technique would require using all four ions, m/e two hundred fifty-seven, three hundred twenty, three hundred twenty-two, and three hundred twenty-eight, to verify detection and signal to noise ratio of five to one. Suspected impurities such as DDE, DDD, or PCB residues can be confirmed by checking for their major fragments. These materials can be removed by the cleanup columns. Failure to meet criteria should be explained in the report, or the sample reanalyzed.

11.6 If broad background interference restricts the sensitivity of the gas chromatograph/mass spectrometer analysis, the analyst should employ cleanup procedures and reanalyze by gas chromatograph/mass spectrometer. See Section 10.0.

11.7 In those circumstances where these procedures do not yield a definitive conclusion, the use of high resolution mass spectrometry is suggested.

12. Calculations

12.1 Determine the concentration of individual compounds according to the formula:

$$\text{Concentration, } \mu g/gm = \frac{A \times A_s}{G \times A_{is} \times R_f}$$

where:
A = μg of internal standard added to the sample[8]
G = gm of sample extracted
A_s = area of characteristic ion of the compound being quantified
A_{is} = area of characteristic ion of the internal standard
R_f = response factor[9]

Response factors are calculated using data obtained from the analysis of standards according to the formula:

$$RF = \frac{A_s \times C_{is}}{A_{is} \times C_s}$$

where:
C_{is} = concentration of the internal standard
C_s = concentration of the standard compound

12.2 Report results in micrograms per gram without correction for recovery data. When duplicate and spiked samples are analyzed, all data obtained should be reported.

12.3 Accuracy and Precision. No data are available at this time.

Table 1. Gas Chromatography of TCDD

Column	Retention Time (min.)	Detection Limit ($\mu g/kg$)[1]
Glass capillary	9.5	0.003

[1] Detection limit for liquid samples is 0.003 $\mu g/l$. This is calculated from the minimum detectable GC response being equal to five times the GC background noise assuming a 1 ml effective final volume of the 1 liter sample extract, and a GC injection of 5 micro liters. Detection levels apply to both electron capture and GC/MS detection. For further details see 44 FR 69526 (December 3, 1979).

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[8] The proper amount of standard to be used is determined from the calibration curve (See Section 6.0).

[9] If standards for pentachlorinated dibenzo-p-dioxins/Fs and hexachlorinated dibenzo-p-dioxins/Fs are not available, response factors for ions derived from these congeners are calculated relative to ^{37}Cl-TCDD/F. The analyst may use response factors for 1,2,3,4- or 2,3,7,8-TCDD, 1,2,3,4,7-PeCDD, or 1,2,3,4,7,8-HxCDD for quantitation of tetrachlorinated dibenzo-p-dioxins/Fs, pentachlorinated dibenzo-p-dioxins/Fs and hexachlorinated dibenzo-p-dioxins/Fs, respectively. Implicit in this requirement is the assumption that the same response is obtained from pentachlorinated dibenzo-p-dioxins/Fs containing the same numbers of chlorine atoms.

Table 2. DFTPP Key Ions and Ion Abundance Criteria[1]

Mass	Ion Abundance Criteria
51	30-60% of mass 198.
68	Less than 2% of mass 69.
70	Less than 2% of mass 69.
127	40-60% of mass 198.
197	Less than 1% of mass 198.
198	Base peak, 100% relative abundance.
199	5-9% of mass 198.
275	10-30% of mass 198.
365	Greater than 1% of mass 198.
441	Present but less than mass 443.
442	Greater than 40% of mass 198.
443	17-23% of mass 442.

[1] J. W. Eichelberger, L. E. Harris, and W. L. Budde. 1975. Reference compound to calibrate ion abundance measurement in gas chromatography-mass spectrometry. Analytical Chemistry 47:995.

Table 3. List of Accurate Masses Monitored Using GC Selected-Ion Monitoring, Low Resolution, Mass Spectrometry for Simultaneous Determination of Tetra-, Penta- Hexachlorinated Dibenzo-P-Dioxins and Dibenzofurans

Class of Chlorinated Dibenzodioxin or Dibenzofuran	Number of Chlorine Substituents (x)	Monitored m/z for Dibenzodioxins $C_{12}H_{8-x}O_2Cl_x$	Monitored m/z for Dibenzofurans $C_{12}H_{8-x}OCl_x$	Approximate Theoretical Ratio Expected on Basis of Isotopic Abundance
Tetra	4	[1]319.897	[1]303.902	0.74
		321.894	305.903	1.00
		[2]327.885	[2]311.894	.....
		[3]256.933	.....	0.21
		[3]258.930	.....	0.20
Penta	5	[1]353.858	.....	0.57
		355.855	339.860	1.00
Hexa	6	389.816	373.821	1.00
		391.813	375.818	0.87

[1] Molecular ion peak.
[2] Cl_4 labelled standard peaks.
[3] Ions which can be monitored in TCDD analyses for confirmation purposes.

CHAPTER 33-24-03
STANDARDS FOR GENERATORS

33-24-03-01. Scope and applicability. This chapter establishes standards for generators of hazardous waste.

1. Subsections 3 and 4 of section 33-24-02-05 must be used to determine the applicability of provisions of this chapter that are dependent on calculations of the quantity of hazardous waste generated per month.

~~1~~2. A generator who treats, stores, or disposes of hazardous waste onsite must only comply with the following sections of this chapter with respect to that waste: Section 33-24-03-02 for determining whether or not the generator has a hazardous waste, section 33-24-03-03 for obtaining an identification number, section 33-24-03-12 for accumulation of hazardous waste, subsections 3 and 4

of section 33-24-03-13 for recordkeeping, section 33-24-03-16 for additional reporting and if applicable, section 33-24-03-40 for farmers.

~~2~~3. Any person who imports hazardous waste into the United States through this state must comply with the standards applicable to generators established in this chapter.

~~3~~4. A farmer who generates waste pesticides which are hazardous waste and who complies with all the requirements of section 33-24-03-40 is not required to comply with other standards in chapters 33-24-03 through 33-24-06 with respect to such pesticides.

~~4~~5. A person who generates a hazardous waste as defined in chapter 33-24-02 is subject to the compliance requirements and penalties prescribed in North Dakota Century Code chapter 23-20.3 if the person does not comply with the requirements of this chapter.

~~5~~6. An owner or operator who initiates a shipment of hazardous waste from a treatment, storage, or disposal facility must comply with the generator standards established in this chapter. ~~(Note: The provisions of section 33-24-03-12 are applicable to the onsite accumulation of hazardous waste by generators. Therefore, the provisions of section 33-24-03-12 only apply to owners or operators who are shipping hazardous waste which they generated at that facility.)~~

Note 1: The provisions of section 33-24-03-12 are applicable to the onsite accumulation of hazardous waste by generators. Therefore, the provisions of section 33-24-03-12 only apply to owners or operators who are shipping hazardous waste that they generated at that facility.

Note 2: A generator who treats, stores, or disposes of hazardous waste onsite must comply with the applicable standards and permit requirements set forth in chapters 33-24-05 and 33-24-06.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-02. Hazardous waste determination. A person who generates a solid waste as defined in section 33-24-02-02 must determine if that waste is a hazardous waste using the following method:

1. The person should first determine if the waste is excluded from regulation under section 33-24-02-04;

2. The person must then determine if the waste is listed as a hazardous waste in chapter 33-24-02; and

3. For purposes of compliance with sections 33-24-05-250 through 33-24-05-299, or if the waste is not listed in sections 33-24-02-15 through 33-24-02-19, the generator must then determine whether the waste is identified in sections 33-24-02-10 through 33-24-02-14 by either:

   a. Testing the waste according to the methods set forth in chapter 33-24-02 or an equivalent method as approved by the department; or

   b. Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.

c. All waste analysis pursuant to subdivision a must be conducted by a laboratory approved by the department's certification procedures.

4. If the waste is determined to be hazardous, the generator ~~shall~~ must refer to ~~chapter~~ chapters 33-24-02 and 33-24-05 for possible exclusions or restrictions pertaining to management of the generator's specific waste.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-03. Identification number and registration certificate.

1. A generator may not treat, store, dispose of, transport, or offer for transportation, hazardous waste without having received an identification number and a registration certificate from the department.

2. A generator who has not received an identification number and a registration certificate may obtain one by applying to the department. Upon receiving the request the department will assign an identification number and issue a registration certificate to the generator.

3. A generator may not offer the generator's hazardous waste to transporters that have not received an identification number and a registration certificate, or to treatment, storage, or disposal facilities that have not received an identification number and applied for a permit.

4. The department may assess and collect reasonable fees for the issuance of registration certificates.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03, 23-20.3-05.1
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05.1

33-24-03-04. General requirements of the manifest.

1. A generator who transports, or offers for transportation, hazardous waste for offsite treatment, storage, or disposal must prepare a uniform hazardous waste manifest, environmental protection agency form 8700-22, and if necessary, environmental protection agency form 8700-22a, according to instructions included in appendix ~~1~~ I to this chapter.

2. A generator must designate on the manifest one facility which is permitted to handle the waste described on the manifest.

3. A generator may also designate on the manifest one alternate facility which is permitted to handle the generator's waste in the event an emergency prevents delivery of the waste to the primary designated facility.

4. If the transporter is unable to deliver the hazardous waste to the designated facility or the alternate facility, the generator must either designate another facility or instruct the transporter to return the waste.

5. The requirements of sections 33-24-03-04 through 33-24-03-07 do not apply to hazardous waste produced by generators of greater than one hundred kilograms but less than one thousand kilograms in a calendar month where:

a. The waste is reclaimed under a contractual agreement pursuant to which:

(1) The type of waste and frequency of shipments are specified in the agreement; and

(2) The vehicle used to transport the waste to the recycling facility and to deliver regenerated material back to the generator is owned and operated by the reclaimer of the waste; and

b. The generator maintains a copy of the reclamation agreement in the generator's files for a period of at least three years after termination or expiration of the agreement.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-05. Acquisition of manifests.

1. If the state to which the shipment is manifested (consignment state) supplies the manifest and requires its use, then the generator must use that manifest.

2. If the consignment state does not supply the manifest, then the generator may obtain the manifest from any source.

History: Effective January 1, 1984; amended effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-06. Number of copies of the manifest. The manifest must consist of at least the number of copies which will provide the generator, each transporter, and the owner or operator of the designated facility with one copy each for their records and another copy to be returned to the generator.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-07. Use of the manifest.

1. The generator must:

a. Sign the manifest certification by hand;

b. Obtain the handwritten signature of the initial transporter and date of acceptance on the manifest; and

c. Retain one copy, in accordance with subsection 1 of section 33-24-03-13.

2. The generator must give the transporter the remaining copies of the manifest.

3. For shipments of hazardous waste within the United States solely by water (bulk shipments only), the generator must send three copies of the manifest dated and signed in accordance with this section to the owner or operator of the designated facility or the last water (bulk shipment) transporter to

handle the waste in the United States if exported by water. Copies of the manifest are not required for each transporter.

4. For rail shipments of hazardous waste within the United States which originate at the site of generation, the generator must send at least three copies of the manifest dated and signed in accordance with this section to:

   a. The next nonrail transporter, if any;

   b. The designated facility if transported solely by rail; or

   c. The last rail transporter to handle the waste in the United States if exported by rail.

5. For shipments of hazardous waste to a designated facility in an authorized state which has not yet obtained authorization to regulate that particular waste as hazardous, the generator must assure that the designated facility agrees to sign and return the manifest to the generator, and that any out-of-state transporter signs and forwards the manifest to the designated facility.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-08. Packaging. Before transporting hazardous waste or offering hazardous waste for transportation offsite, a generator must package the waste in accordance with the applicable department of transportation regulations on packaging under 49 CFR Parts 173, 178, and 179.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-09. Labeling. Before transporting or offering hazardous waste for transportation offsite, a generator must label each package in accordance with the applicable department of transportation regulations on hazardous materials under 49 CFR Part 172.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-10. Marking.

1. Before transporting or offering hazardous waste for transportation offsite, a generator must mark each package of hazardous waste in accordance with the applicable department of transportation regulations on hazardous materials under 49 CFR Part 172.

2. Before transporting hazardous waste or offering hazardous waste for transportation offsite, a generator must mark each container of one hundred ten gallons [416.40 liters] or less used in such transportation with the following words and information displayed in accordance with the requirements of 49 CFR 172.304:

HAZARDOUS WASTE - Federal Law prohibits improper disposal. If found, contact the nearest police or public safety authority or the United States Environmental Protection Agency.

Generator Name and Address_____.
Manifest Document Number_____.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-11. Placarding. Before transporting hazardous waste or offering hazardous waste for transportation offsite, a generator must placard or offer the initial transporter the appropriate placards according to department of transportation regulations for hazardous materials under 49 CFR Part 172, subpart F.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-12. Accumulation Time.

1. Except as provided in subsections 4, 5, and 6, a generator may accumulate hazardous waste onsite for ninety days or less without a permit or without having interim status provided that:

   a. The waste is placed:

      (1) In containers and the generator complies with sections 33-24-05-89 through 33-24-05-102; or

      (2) In tanks and the generator complies with sections 33-24-05-103 through 33-24-05-~~114~~ 115, except subsection 3 of section 33-24-05-110 and section 33-24-05-113; or

      (3) On drip pads and the generator complies with sections 33-24-05-501 through 33-24-05-524 and maintains the following records at the facility:

         (a) A description of procedures that will be followed to ensure that all wastes are removed from the drip pad and associated collection system at least once every ninety days; and

         (b) Documentation of each waste removal, including the quantity of waste removed from the drip pad and the sump or collection system and the date and time of removal; or

      (4) In containment buildings and the generator complies with sections 33-24-05-475 through 33-24-05-500 and has placed its professional engineer certification that the building complies with the design standards specified in section 33-24-05-476 in the facility's operating record no later than sixty days after the date of initial operation of the unit. After February 18, 1993, professional engineer certification will be required prior to operation of the unit. The owner or operator shall maintain the following records at the facility:

(a) A written description of procedures to ensure that each waste volume remains in the unit for no more than ninety days, a written description of the waste generation and management practices for the facility showing that they are consistent with respecting the ninety-day limit, and documentation that the procedures are complied with; or

(b) Documentation that the unit is emptied at least once every ninety days.

In addition, such a generator is exempt from all the requirements in sections 33-24-05-59 through 33-24-05-88, except for sections 33-24-05-60 and 33-24-05-63.

b. The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container;

c. While being accumulated onsite, each container and tank is properly labeled or marked with the words "Hazardous Waste"; and

d. The generator complies with the requirements for owners or operators in sections 33-24-05-10 through 33-24-05-36, with section 33-24-05-07, and with subdivision d of subsection 1 of section 33-24-05-256.

2. A generator who accumulates hazardous waste for more than ninety days, is an operator of a storage facility, and is subject to the requirements of chapter 33-24-05 and the permit requirements of chapter 33-24-06, unless the generator has been granted an extension to the ninety-day period. Such extension may be granted by the department if hazardous wastes must remain onsite for longer than ninety days due to unforeseen, temporary, and uncontrollable circumstances. An extension may be granted at the discretion of the department on a case-by-case basis.

3. A generator may accumulate as much as fifty-five gallons of hazardous waste or one quart of acutely hazardous waste listed in subsection 5 of section 33-24-02-18 in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with subsection 1 provided the operator:

a. Complies with sections 33-24-05-90, 33-24-05-91, and subsection 1 of section 33-24-05-92; and

b. Marks the operator's containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers.

4. A generator who generates greater than one hundred kilograms but less than one thousand kilograms of hazardous waste in a calendar month may accumulate hazardous waste onsite for one hundred eighty days or less without a permit or without having interim status provided that:

a. The quantity of waste accumulated onsite never exceeds six thousand kilograms;

b. The generator complies with requirements of sections 33-24-05-89 through 33-24-05-102, except section 33-24-05-95;

c. The generator complies with the requirements of section 33-24-05-114;

d. The generator complies with the requirements of subdivisions b and c of subsection 1, sections 33-24-05-12 through 33-24-05-21, and the requirements of subdivision d of subsection 1 of section 33-24-05-256; and

e. The generator complies with the following requirements:

(1) At all times there must be at least one employee either on the premises or on call (~~i.e.,~~ for example, available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all the emergency response measures specified in paragraph 4 of subdivision ~~e~~ e of subsection 4. This employee is the emergency coordinator.

(2) The generator shall post the following information next to the telephone:

(a) The name and telephone number of the emergency coordinator;

(b) Location of fire extinguishers and spill control material and, if present, fire alarm; and

(c) The telephone number of the fire department, unless the facility has a direct alarm.

(3) The generator shall ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies;

(4) An emergency coordinator or his designee shall respond to any emergency that arises. The applicable responses are as follows:

(a) In the event of a fire, call the fire department or attempt to extinguish it using a fire extinguisher;

(b) In the event of a spill, contain the flow of hazardous waste to the extent possible, and as soon as is practicable, clean up the hazardous waste and any contaminated materials or soil; and

(c) In the event of a fire, explosion, or other release which could threaten human health outside the facility, or when the generator has knowledge that a spill has reached surface water, the generator shall immediately notify the national response center using their twenty-four-hour toll free number 1-800-424-8802. The report must include the following information:

[1] The name, address, and state/environmental protection agency identification number of the generator;

[2] Date, time, and type of incident (~~e.g.,~~ for example, spill or fire);

[3] Quantity and type of hazardous waste involved in the incident;

[4] Extent of injuries, if any; and

[5] Estimated quantity and disposition of recovered materials, if any.

5. A generator who generates greater than one hundred kilograms but less than one thousand kilograms of hazardous waste in a calendar month and who must transport the waste or offer the waste for transportation, over a distance of two hundred miles or more for offsite treatment, storage or disposal may accumulate hazardous waste onsite for two hundred seventy days or less without a permit or without having interim status provided the generator complies with the requirements of subsection 4.

6. A generator who generates greater than one hundred kilograms but less than one thousand kilograms of hazardous waste in a calendar month and who accumulates hazardous waste in quantities exceeding six thousand kilograms or accumulates hazardous waste for more than one hundred eighty days (or for more than two hundred seventy days if the generator shall transport the waste or offer the waste for transportation, over a distance of two hundred miles or more) is an operator of a storage facility and is subject to the requirements of chapter 33-24-05 and the permit requirements of chapter 33-24-06 unless the generator has been granted an extension to the one hundred eighty days (or two hundred seventy days if applicable). Such extension may be granted by the department if hazardous waste must remain onsite for longer than one hundred eighty days (or two hundred seventy days if applicable) due to unforeseen, temporary, and uncontrollable circumstances. An extension may be granted at the discretion of the department on a case-by-case basis.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-13. Recordkeeping.

1. A generator must keep a copy of each manifest signed in accordance with subsection 1 of section 33-24-03-07 for three years or until the generator receives a signed copy from the designated facility which received the waste. This signed copy must be retained as a record for at least three years from the date the waste was accepted by the initial transporter.

2. A generator must keep a copy of each ~~annual~~ biennial report and exception report for a period of at least three years from the due date of the report, March first of each year.

3. A generator must keep records of any test results, waste analyses, or other determinations made in accordance with section 33-24-03-02 for at least three years from the date the waste was last sent to onsite or offsite treatment, storage, or disposal.

4. The periods for retention referred to in this section are extended automatically during the course of any unresolved enforcement action regarding the regulated activity or as requested by the department.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-14. ~~Annual~~ Biennial reporting.

1. A generator who ships any hazardous waste offsite to a treatment, storage or disposal facility within the United States shall prepare and submit a single copy of ~~an annual~~ a biennial report to the department by March first of each even numbered year. The ~~annual~~ biennial report must be submitted on department-approved forms, must cover generator activities during the previous calendar year, and must include the following information:

   a. The identification number, name, and address of the generator;

   b. The calendar year covered by the report;

   c. The identification number, name, and address for each offsite treatment, storage, or disposal facility in the United States to which waste was shipped during the year;

   d. The name and identification number of each transporter used during the reporting year for shipments to a treatment, storage, or disposal facility within the United States;

   e. A description, hazardous waste number (from chapter 33-24-02), department of transportation hazard class, and quantity of each hazardous waste shipped offsite for shipments to a treatment, storage, or disposal facility within the United States. This information must be listed by identification number of each such offsite facility to which waste was shipped;

   f. A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;

   g. A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to the previous year to the extent such information is available for years prior to 1984; and

   h. The certification signed by the generator or authorized representative.

2. Any generator who treats, stores, or disposes of hazardous waste onsite must submit ~~an annual~~ a biennial report covering those wastes in accordance with the provisions of chapters 33-24-05 and 33-24-06.

3. Reporting for exports of hazardous waste is not required on the annual report form. A separate annual report requirement is set forth in section 33-24-03-23.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-15. Exception reporting.

1. A generator of greater than one thousand kilograms of hazardous waste in a calendar month who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within ~~thirty-five~~ thirty-five days of the date the waste was accepted by the initial transporter shall contact the transporter or the owner or operator, or both, of the designated facility to determine the status of the hazardous waste.

2. A generator of greater than one thousand kilograms of hazardous waste in a calendar month must submit an exception report to the department if the generator has not received a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within forty-five days of the date the waste was accepted by the initial transporter. The exception report must be submitted to the department within sixty days of the date the waste was accepted by the initial transporter and must include:

   a. A legible copy of the manifest for which the generator does not have confirmation of delivery; and

   b. A cover letter signed by the generator or the generator's authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts.

3. A generator who generates greater than one hundred kilograms but less than one thousand kilograms of hazardous waste in a calendar month who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within sixty days of the date the waste was accepted by the initial transporter shall submit a legible copy of the manifest, with some indication that the generator has not received confirmation of delivery, to the department.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-16. Additional reporting.

1. A generator of greater than one thousand kilograms of hazardous waste in a calendar month who makes an offsite shipment of hazardous waste shall send to the department a legible copy of the signed manifest or shipping paper within twenty-one days of the date:

   a. When first signed by the generator and transporter; and

   b. As signed by and received from the designated facility or alternate facility.

2. The department, as it deems necessary, may require generators to furnish additional reports concerning the quantities and disposition of wastes identified or listed in this article.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-17. Exports of hazardous waste. Sections 33-24-03-17 through 33-24-03-25 establish requirements applicable to exports of hazardous waste. Except to the extent section 33-24-03-25 provides otherwise, a primary exporter of hazardous waste must comply with the special requirements of these sections and a transporter transporting hazardous waste for export shall comply with applicable requirements of chapter 33-24-04. ~~Section 33-24-03-25~~ 40 CFR 262.58 sets forth the requirements of international agreements between the United States and receiving countries which establish different notice, export, and enforcement procedures for the transportation, treatment, storage

and disposal of hazardous waste for shipments between the United States and those countries are set forth in 40 CFR 262.58.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-18. Definitions. In addition to the definitions set forth in section 33-24-01-04, the following definitions apply to sections 33-24-03-17 through 33-24-03-25:

1. "Consignee" means the ultimate treatment, storage, or disposal facility in a receiving country to which the hazardous waste will be sent.

2. "Environmental protection agency acknowledgment of consent" means the cable sent to the environmental protection agency from the United States embassy in a receiving country that acknowledges the written consent of the receiving country to accept the hazardous waste and describes the terms and conditions of the receiving country's consent to the shipment.

3. "Primary exporter" means any person who is required to originate the manifest for a shipment of a hazardous waste in accordance with chapter 33-24-03, which specifies a treatment, storage, or disposal facility in a receiving country as the facility to which the hazardous waste will be sent and any intermediary arranging for the export.

4. "Receiving country" means a foreign country to which a hazardous waste is sent for the purpose of treatment, storage or disposal (except short-term storage incidental to transportation).

5. "Transit country" means any foreign country, other than a receiving country through which a hazardous waste is transported.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-19. General requirements. Exports of hazardous wastes are prohibited except in compliance with the applicable requirements of sections 33-24-03-17 through 33-24-03-25 and chapter 33-24-04. Exports of hazardous waste are prohibited unless:

1. Notification in accordance with section 33-24-03-20 has been provided;

2. The receiving country has consented to accept the hazardous waste;

3. A copy of the environmental protection agency acknowledgment of consent to the shipment accompanies the hazardous waste shipment and, unless exported by rail, is attached to the manifest (or shipping paper for exports by water (bulk shipment)); and

4. The hazardous waste shipment conforms to the terms of the receiving country's written consent as reflected in the environmental protection agency acknowledgment of consent.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-20. Notification of intent to export.

1. A primary exporter of hazardous waste shall notify the department and the environmental protection agency of an intended export before such waste is scheduled to leave the United States. A complete notification should be submitted sixty days before the initial shipment is intended to be shipped offsite. This notification may cover export activities extending over a twelve-month or lesser period. The notification must be in writing, signed by the primary exporter, and include the following information:

   a. Name, mailing address, telephone number and identification number of the primary exporter; and

   b. By consignee, for each hazardous waste type;

      (1) A description of the hazardous waste and state/environmental protection agency hazardous waste number (from chapter 33-24-02), United States department of transportation proper shipping name, hazard class, and identification number (UN/NA) for each hazardous waste as identified in 49 CFR part 171-177;

      (2) The estimated frequency or rate at which such waste is to be exported and the period of time over which such waste is to be exported;

      (3) The estimated total quantity of the hazardous waste in units as specified in instructions to the uniform hazardous waste manifest form (8700-22);

      (4) All points of entry to and departure from each foreign country through which the hazardous waste will pass;

      (5) A description of the means by which each shipment of the hazardous waste will be transported (~~e.g.,~~ for example, mode of transportation vehicle (air, highway, rail, water, etc.)), types of container (drums, boxes, tanks, etc.);

      (6) A description of the manner in which the hazardous waste will be treated, stored or disposed of in the receiving country (~~e.g.,~~ for example, land or ocean, incineration, other land disposal, ocean dumping, recycling);

      (7) The name and site address of the consignee and any alternate consignee; and

      (8) The name of any transit countries through which the hazardous waste will be sent and a description of the approximate length of time the hazardous waste will remain in such country and the nature of its handling while there.

2. Notification must be sent to the department and ~~to the Office of Waste Programs Enforcement, RCRA Enforcement Division (OS-520), Environmental Protection Agency 401 M Street SW, Washington, D.C. 20460 with "attention: notification to export" prominently displayed on the front of the envelope.~~ to the following mailing address: Office of Enforcement and Compliance Assurance, Office of Compliance, Enforcement Planning, Targeting, and Data Division (2222A), Environmental Protection Agency, 401 M Street, SW, Washington, D.C. 20460. Hand-delivered notifications should be sent to: Office of Enforcement and Compliance Assurance, Office of Compliance, Enforcement Planning, Targeting, and Data Division (2222A), Environmental Protection

Agency, Ariel Rios Building, 12 Street and Pennsylvania Avenue, NW, Washington, D.C. In both cases, the following shall be prominently displayed on the front of the envelope: "Attention: Notification of Intent to Export".

3. Except for changes to the telephone number in subdivision a of subsection 1, changes to paragraph 5 of subdivision b of subsection 1 and decreases in the quantity indicated pursuant to paragraph 3 of subdivision b of subsection 1 when the condition specified on the original notification change (including any accedence of the estimate of the quantity of hazardous waste specified in the original notification), the primary exporter shall provide the department and the environmental protection agency with a written notification of the change. The shipment cannot take place until consent of the receiving country to the changes (except for changes to paragraph 8 of subdivision b of subsection 1 and in the ports of entry to and departure from transit countries pursuant to paragraph 4 of subdivision b of subsection 1) has been obtained and the primary exporter receives an environmental protection agency acknowledgment of consent reflecting the receiving country's consent to the changes.

4. Upon request by the department or the environmental protection agency, a primary exporter shall furnish to the department or the environmental protection agency any additional information which a receiving country requests in order to respond to a notification.

5. A notification is complete when the department receives a notification which the department determines satisfies the requirements of subsection 1 and the requirements of the environmental protection agency such that an environmental protection agency acknowledgment of consent is issued to the primary exporter.

6. The primary exporter shall provide the department with a copy of the environmental protection agency acknowledgment of consent prior to shipment offsite.

History: Effective December 1, 1988; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-21. Special manifest requirements. A primary exporter must comply with the manifest requirements of sections 33-24-03-04 through 33-24-03-07 except that:

1. In lieu of the name, site address, and identification number of the designated permitted facility, the primary exporter shall enter the name and site address of the consignee;

2. In lieu of the name, site address, and identification number of a permitted alternate facility, the primary exporter may enter the name and site address of any alternate consignee;

3. In special handling instructions and additional information, the primary exporter shall identify the point of departure from the United States;

4. The following statement must be added to the end of the first sentence of the certification set forth in item 16 of the uniform hazardous waste manifest form "and conforms to the terms of the attached environmental protection agency acknowledgment of consent";

5. In lieu of the requirements of section 33-24-03-05, the primary exporter may obtain a manifest form from any source;

6. The primary exporter shall require the consignee to confirm in writing the delivery of the hazardous waste to that facility and to describe any significant discrepancies (as defined in subsection 1 of section 33-24-05-39) between the manifest and the shipment. A copy of the manifest signed by such facility may be used to confirm delivery of the hazardous waste;

7. In lieu of the requirements of subsection 4 of section 33-24-03-04, where a shipment cannot be delivered for any reason to the designated or alternate consignee, the primary exporter shall;

   a. Renotify the state and the environmental protection agency of a change in the conditions of the original notification to allow shipment to a new consignee in accordance with subsection 3 of section 33-24-03-20 and obtain an environmental protection agency acknowledgment of consent prior to delivery, or

   b. Instruct the transporter to return the waste to the primary exporter in the United States or designate another facility within the United States, and

   c. Instruct the transporter to revise the manifest in accordance with the primary exporter's instructions.

8. The primary exporter shall attach a copy of the environmental protection agency acknowledgment of consent to the shipment to the manifest which must accompany the hazardous waste shipment. For exports by rail or water (bulk shipments), the primary exporter shall provide the transporter with an environmental protection agency acknowledgment of consent which must accompany the hazardous waste but which need not be attached to the manifest except that for exports by water (bulk shipments) the primary exporter shall attach the copy of the environmental protection agency acknowledgment of consent to the shipping paper; and

9. The primary exporter shall provide the transporter with an additional copy of the manifest for delivery to the United States customs official at the point the hazardous waste leaves the United States in accordance with subdivision d of subsection 7 of section 33-24-04-04.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-22. Exception reports for exporters. In lieu of the requirements of section 33-24-03-15 a primary exporter shall file an exception report with the environmental protection agency administrator and department if:

1. The primary exporter has not received a copy of the manifest signed by the transporter stating the date and place of departure from the United States within forty-five days of the date it was accepted by the initial transporter; or

2. Within ninety days from the date the waste was accepted by the initial transporter, the primary exporter has not received written confirmation from the consignee that the hazardous waste was received; or

3. The waste is returned to the United States.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-23. Annual reports for exporters.

1. Primary exporters of hazardous waste shall file with the environmental protection agency administrator and department no later than March first of each year, a report summarizing the types, quantities, frequency, and ultimate destination of all hazardous waste exported during the previous calendar year. Such reports must include the following:

   a. The identification number, name, mailing and site address of the exporter;

   b. The calendar year covered by the report;

   c. The name and site address of each consignee;

   d. By consignee, for each hazardous waste exported, a description of the hazardous waste, the hazardous waste number (from chapter 33-24-02), department of transportation hazard class, the name and identification number (where applicable) for each transporter used, the total amount of waste shipped, and number of shipments pursuant to each notification; and

   e. Except for hazardous waste produced by exporters of greater than one hundred kilograms but less than one thousand kilograms in a calendar month unless provided pursuant to section 33-24-03-14 in even-numbered years:

      (1) A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated; and

      (2) A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for years prior to 1984.

   f. A certification signed by the primary exporter which states: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

2. ~~Reports~~ Annual reports must be sent to the department and to the following address: ~~Office of Waste Programs Enforcement, RCRA Enforcement Division (OS-520), Environmental Protection Agency, 401 M Street SW, Washington, DC 20460.~~ Office of Enforcement and Compliance Assurance, Office of Compliance, Enforcement Planning, Targeting, and Data Division (222A), Environmental Protection Agency, 401 M Street, SW, Washington D.C. 20460.

History: Effective December 1, 1988; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-24. Recordkeeping.

1. For all exports a primary exporter shall:

a. Keep a copy of each notification of intent to export for a period of at least three years from the date the hazardous waste was accepted by the initial transporter;

b. Keep a copy of each environmental protection agency acknowledgment of consent for a period of at least three years from the date the hazardous waste was accepted by the initial transporter;

c. Keep a copy of each confirmation of delivery of the hazardous waste from the consignee for at least three years from the date the hazardous waste was accepted by the initial transporter; and

d. Keep a copy of each annual report for a period of at least three years from the due date of the report.

2. The periods of retention referred to in this section are extended automatically during the course of any unresolved enforcement action regarding the regulated activity or as requested by the department.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-25. International agreements. [Reserved]

33-24-03-26. [Reserved]

33-24-03-27. [Reserved]

33-24-03-28. [Reserved]

33-24-03-29. [Reserved]

33-24-03-30. Imports of hazardous waste.

1. Any person who imports hazardous waste from a foreign country into the United States shall comply with the requirements of this chapter and the special requirements of this section.

2. When importing a hazardous waste, a person shall meet all the requirements of subsection 1 of section 33-24-03-04 for the manifest except that:

   a. In place of the generator's name, address, and identification number, the name and address of the foreign generator and the importer's name, address, and identification number must be used.

   b. In place of the generator's signature on the certification statement the United States importer or his agent shall sign and date the certification and obtain the signature of the initial transporter.

3. A person who imports hazardous waste shall obtain the manifest form from the consignment state if the state supplies the manifest and requires its use. If the consignment state does not supply the manifest form, then the manifest form may be obtained from any source.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-03-31. [Reserved]

33-24-03-32. [Reserved]

33-24-03-33. [Reserved]

33-24-03-34. [Reserved]

33-24-03-35. [Reserved]

33-24-03-36. [Reserved]

33-24-03-37. [Reserved]

33-24-03-38. [Reserved]

33-24-03-39. [Reserved]

33-24-03-40. Farmers. A farmer disposing of pesticide containers from the farmers own use is not required to comply with the standards in this chapter or chapters 33-24-05 and 33-24-06 provided the farmer triple rinses each emptied pesticide container in accordance with subdivision a, b, or c of subsection 4 of section 33-24-02-07 and disposes of the pesticide residue on the farmers own farm in a manner consistent with the disposal instructions on the pesticide label.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

APPENDIX I
UNIFORM HAZARDOUS WASTE MANIFEST AND INSTRUCTIONS

(Environmental protection agency forms 8700-22 and 8700-22A and their instructions)

United States environmental protection agency form 8700-22

Read all instructions before completing this form.

This form has been designed for use on a 12-pitch (elite) typewriter; a firm point pen may also be used - press down hard.

State regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, and disposal facilities to use this form (8700-22) and, if necessary, the continuation sheet (form 8700-22A) for both interstate and intrastate transportation.

State regulations also require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage and disposal facilities to complete the following information:

* * * * * *

State regulations under section 33-24-03-16 (additional reporting) requires the generator to provide the department with a signed copy of the manifest when first signed by the generator and transporter and as signed by and received from the designated facility or alternate facility.

* * * * * *

GENERATORS

Item 1. Generator's state/environmental protection agency identification number - manifest document number

Enter the generator's state/environmental protection agency twelve-digit identification number and the unique five-digit number assigned to this manifest (~~e.g.,~~ for example, 00001) by the generator.

Item 2. Page 1 of ____

Enter the total number of pages used to complete this manifest, ~~i.e.,~~ for example, the first page (environmental protection agency form 8700-22) plus the number of continuation sheets (environmental protection agency form 8700-22A), if any.

Item 3. Generator's name and mailing address

Enter the name and mailing address of the generator. The address should be the location that will manage the returned manifest items.

Item 4. Generator's phone number

Enter a telephone number where an authorized agent of the generator may be reached in the event of any emergency.

Item 5. Transporter 1 company name

Enter the company name of the first transporter who will transport the waste.

Item 6. State/environmental protection agency identification number

Enter the state/environmental protection agency twelve-digit identification number of the first transporter identified in item 5.

Item 7. Transporter 2 company name

If applicable, enter the company name of the second transporter who will transport the waste. If more than two transporters are used to transport the waste, use a continuation sheet(s) (environmental protection agency form 8700-22A) and list the transporters in the order they will be transporting the waste.

Item 8. State/environmental protection agency identification number

If applicable, enter the state/environmental protection agency twelve-digit identification number of the second transporter identified in item 7.

Note: If more than two transporters are used, enter each additional transporter's company name and state/environmental protection agency twelve-digit identification number in items 24-27 on the continuation sheet (environmental protection agency form 8700-22A). Each continuation sheet has space to record two additional transporters. Every transporter used between the generator and the designated facility must be listed.

Item 9. Designated facility name and site address

Enter the company name and site address of the facility designated to receive the waste listed on this manifest. The address must be the site address, which may differ from the company mailing address.

Item 10. State/environmental protection agency identification number

Enter the state/environmental protection agency twelve-digit identification number of the designated facility identified in item 9.

Item 11. United States department of transportation description, including proper shipping name, hazard class, and identification number (UN/NA)

Enter the United States department of transportation proper shipping name, hazard class, and identification number (UN/NA) for each waste as identified in 49 CFR 171 through 177.

Note: If additional space is needed for waste descriptions, enter these additional descriptions in item 28 on the continuation sheet (environmental protection agency form 8700-22A).

Item 12. Containers (number and type)

Enter the number of containers for each waste and the appropriate abbreviation from table I (below) for the type of container.

Table I. Types of Containers

DM = Metal drums, barrels, kegs
DW = Wooden drums, barrels, kegs
DF = Fiberboard or plastic drums, barrels, kegs
TP = Tanks portable
TT = Cargo tanks (tank trucks)
TC = Tank cars
DT = Dump truck
CY = Cylinders
CM = Metal boxes, cartons, cases (including rolloffs)
CW = Wooden boxes, cartons, cases

CF = Fiber or plastic boxes, cartons, cases
BA = Burlap, cloth, paper or plastic bags

Item 13. Total quantity

Enter the total quantity of waste described on each line.

Item 14. Unit (weight/volume)

Enter the appropriate abbreviation from table II (below) for the unit of measure.

Table II - Units of Measure

G = Gallons (liquids only)
P = Pounds
T = Tons (2000 pounds)
Y = Cubic yards
L = Liters (liquids only)
K = Kilograms
M = Metric tons (1000 kilograms)
N = Cubic meters

Item 15. Special handling instructions and additional information

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or bill of lading information. States may not require additional, new, or different information in this space. For international shipments, generators must enter in this space the point of departure (city and state) for those shipments destined for treatment, storage, or disposal outside the jurisdiction of the United States.

Item 16. Generator's certification

The generator must read, sign (by hand), and date the certification statement. If a mode other than highway is used, the word "highway" should be lined out and the appropriate mode (rail, water, or air) inserted in the space below. If another mode in addition to the highway mode is used, enter the appropriate additional mode (~~e.g.,~~ for example, and rail) in the space below.

In signing the waste minimization certification statement, those generators who have not been exempted by statute or regulation from the duty to make a waste minimization certification are also certifying that they have complied with the waste minimization requirements.

Generators may preprint the words, "on behalf of" in the signature block or may handwrite this statement in the signature block prior to signing the generator certifications.

Note: All of the above information except the handwritten signature required in item 16 may be preprinted.

* * * * * *

TRANSPORTERS

Item 17. Transporter 1 acknowledgment of receipt of materials

Enter the name of the person accepting the waste on behalf of the first transporter. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Item 18. Transporter 2 acknowledgment of receipt of materials

Enter, if applicable, the name of the person accepting the waste on behalf of the second transporter. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Note: International shipments - transporter responsibilities.

Exports - Transporters must sign and enter the date the waste left the United States in item 15 of form 8700-22.

Imports - Shipments of hazardous waste regulated by ~~Article~~ article 33-24 and transported into United States from another country must upon entry be accompanied by the uniform hazardous waste manifest. Transporters who transport hazardous waste into the United States from another country are responsible for completing the manifest (section 33-24-04-01).

OWNERS AND OPERATORS OF TREATMENT, STORAGE, OR DISPOSAL FACILITIES

Item 19. Discrepancy indication space

The authorized representative of the designated (or alternate) facility's owner or operator must note in this space any significant discrepancy between the waste described on the manifest and the waste actually received at the facility.

1. Owners and operators of facilities located in unauthorized states (~~i.e.,~~ for example, the United States environmental protection agency administers the hazardous waste management program) who cannot resolve significant discrepancies within fifteen days of receiving the waste must submit to their regional administrator (see list below) a letter with a copy of the manifest at issue describing the discrepancy and attempts to reconcile it (40 CFR 264.72 and 265.72).

Owners and operators of facilities located in authorized States (~~i.e.,~~ for example, those states that have received authorization from the United States environmental protection agency to administer the hazardous waste program) should contact their state agency for information on state discrepancy report requirements.

Environmental protection agency regional administrators:

Regional Administrator
United States Environmental Protection Agency
Region I, J. F. Kennedy Federal Building
Boston, MA 02203

Regional Administrator
United States Environmental Protection Agency
Region II, 26 Federal Plaza
New York, NY 10278

Regional Administrator
United States Environmental Protection Agency
Region III, 6th and Walnut Streets
Philadelphia, PA 19106

Regional Administrator
United States Environmental Protection Agency

Region IV, 345 Courtland Street, NE
Atlanta, GA 30365

Regional Administrator
United States Environmental Protection Agency
Region V, 230 South Dearborn Street
Chicago, IL 60604

Regional Administrator
United States Environmental Protection Agency
Region VI, 1201 Elm Street
Dallas, TX 75270

Regional Administrator
United States Environmental Protection Agency
Region VII, 324 East Eleventh Street
Kansas City, MO 64106

Regional Administrator
United States Environmental Protection Agency
Region VIII, Denver Place, Suite 500
999 Eighteenth Street
Denver, CO 80202-2466

Regional Administrator
United States Environmental Protection Agency
Region IX, 215 Freemont Street
San Francisco, CA 94105

Regional Administrator
United States Environmental Protection Agency
Region X, 1200 Sixth Avenue
Seattle, WA 98101

Item 20. Facility owner or operator: certification of receipt of hazardous materials covered by this manifest except as noted in item 19

Print or type the name of the person accepting the waste on behalf of the owner or operator of the facility. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Items A-K are not required by federal regulations for intrastate or interstate transportation. However, states may require generators and owner or operators of treatment, storage, or disposal facilities to complete some or all of items A-K as part of state manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities are advised to contact state officials for guidance on completing the shaded areas of the manifest.

Continuation sheet, United States environmental protection agency form 8700-22A: Read all instructions before completing this form.

This form has been designed for use on a 12-pitch (elite) typewriter; a firm point pen may also be used - press down hard.

This form must be used as a continuation sheet to United States environmental protection agency form 8700-22 if:

More than two transporters are to be used to transport the waste;

More space is required for the United States department of transportation description and related information in item 11 of United States environmental protection agency form 8700-22.

State regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, or disposal facilities to use the uniform hazardous waste manifest (environmental protection agency form 8700-22) and, if necessary, this continuation sheet (environmental protection agency form 8700-22A) for both interstate and intrastate transportation.

GENERATORS

Item 21. Generator's state/environmental protection agency identification number - manifest document number

Enter the generator's state/environmental protection agency twelve-digit identification number and the unique five-digit number assigned to this manifest (~~e.g.,~~ for example, 00001) as it appears in item 1 on the first page of the manifest.

Item 22. Page ____

Enter the page number of this continuation sheet.

Item 23. Generator's name

Enter the generator's name as it appears in item 3 on the first page of the manifest.

Item 24. Transporter - company name

If additional transporters are used to transport the waste described on this manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, transporter 3 company name. Each continuation sheet will record the names of two additional transporters.

Item 25. State/environmental protection agency identification number

Enter the state/environmental protection agency twelve-digit identification number of the transporter described in item 24.

Item 26. Transporter - company name

If additional transporters are used to transport the waste described on this manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, transporter 4 company name. Each continuation sheet will record the names of two additional transporters.

Item 27. State/environmental protection agency identification number

Enter the state/environmental protection agency twelve-digit identification number of the transporter described in item 26.

Item 28. United States department of transportation description, including proper shipping name, hazardous class, and identification number (UN/NA)

Refer to item 11.

Item 29. Containers (number and type)

Refer to item 12.

Item 30. Total quantity

Refer to item 13.

Item 31. Unit (weight/volume)

Refer to item 14.

Item 32. Special handling instructions

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or bill of lading information. States are not authorized to require additional, new, or different information in this space.

* * * * * *

TRANSPORTERS

Item 33. Transporter - acknowledgment of receipt of materials

Enter the same number of the transporter as identified in item 24. Enter also the name of the person accepting the waste on behalf of the transporter (company name) identified in item 24. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

Item 34. Transporter - acknowledgment of receipt of materials

Enter the same number as identified in item 26. Enter also the name of the person accepting the waste on behalf of the transporter (company name) identified in item 26. That person must acknowledge acceptance of the waste described on the manifest by signing and entering the date of receipt.

* * * * * *

Owners and operators of treatment, storage, or disposal facilities

Item 35. Discrepancy indication space

Refer to item 19.

Items L-R are not required by federal regulations for intrastate or interstate transportation. However, states may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of items L-R as part of state manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities are advised to contact state officials for guidance on completing the shaded areas of the manifest.

CHAPTER 33-24-05
STANDARDS FOR TREATMENT, STORAGE, AND DISPOSAL FACILITIES AND FOR THE MANAGEMENT OF SPECIFIC HAZARDOUS WASTES AND SPECIFIC TYPES OF HAZARDOUS WASTE MANAGEMENT FACILITIES

GROUND WATER PROTECTION REQUIREMENTS

CLOSURE AND POSTCLOSURE REQUIREMENTS

FINANCIAL REQUIREMENTS

33-24-05-83 [Reserved]
33-24-05-84 [Reserved]
33-24-05-85 [Reserved]
33-24-05-86 [Reserved]
33-24-05-87 [Reserved]
33-24-05-88 [Reserved]

CONTAINER REQUIREMENTS

33-24-05-89 Applicability of Requirements for Use and Management of Containers
33-24-05-90 Condition of Containers
33-24-05-91 Compatibility of Waste with Containers
33-24-05-92 Management of Containers
33-24-05-93 Inspections
33-24-05-94 Containment
33-24-05-95 Special Requirements for Ignitable or Reactive Wastes
33-24-05-96 Special Requirements for Incompatible Wastes
33-24-05-97 Closure
33-24-05-98 ~~[Reserved]~~ Air Emission Standards
33-24-05-99 [Reserved]
33-24-05-100 [Reserved]
33-24-05-101 [Reserved]
33-24-05-102 [Reserved]

TANK REQUIREMENTS

33-24-05-103 Applicability of Tank Requirements
33-24-05-104 Assessment of Existing Tank System's Integrity
33-24-05-105 Design and Installation of New Tank Systems or Components
33-24-05-106 Containment and Detection of Releases
33-24-05-107 General Operating Requirements
33-24-05-108 Inspections
33-24-05-109 Response to Leaks or Spills and Disposition of Leaking or Unfit-for-Use Tank Systems
33-24-05-110 Closure and Postclosure Care
33-24-05-111 Special Requirements for Ignitable or Reactive Wastes
33-24-05-112 Special Requirements for Incompatible Wastes
33-24-05-113 Waste Analysis and Trial Tests
33-24-05-114 Special Requirements for Generators of Between One Hundred and One Thousand Kilograms Per Month that Accumulate Hazardous Waste in Tanks
33-24-05-115 Air Emission Standards
33-24-05-116 [Reserved]
33-24-05-117 [Reserved]

SURFACE IMPOUNDMENT REQUIREMENTS

33-24-05-~~115~~ 118 Applicability of Surface Impoundment Requirements
33-24-05-~~116~~ 119 Design and Operating Requirements
33-24-05-~~117~~ 120 Monitoring and Inspection
33-24-05-~~118~~ 121 Emergency Repairs - Contingency Plans

WASTE PILE REQUIREMENTS

INCINERATOR REQUIREMENTS

LAND TREATMENT REQUIREMENTS

LANDFILL REQUIREMENTS

STANDARDS FOR THE MANAGEMENT OF SPECIFIC HAZARDOUS WASTES AND SPECIFIC TYPES OF HAZARDOUS WASTE MANAGEMENT FACILITIES

RECYCLABLE MATERIALS USED IN A MANNER CONSTITUTING DISPOSAL

HAZARDOUS WASTE BURN FOR ENERGY RECOVERY

[REPEALED: USED OIL BURNED FOR ENERGY RECOVERY
REFER TO: 33-24-05-600]

RECYCLABLE MATERIALS UTILIZED FOR PRECIOUS METAL RECOVERY

SPENT LEAD ACID BATTERIES BEING RECLAIMED

LAND DISPOSAL RESTRICTIONS

MISCELLANEOUS UNITS

33-24-05-318 [Reserved]
33-24-05-319 [Reserved]
33-24-05-320 [Reserved]
33-24-05-321 [Reserved]
33-24-05-322 [Reserved]
33-24-05-323 [Reserved]
33-24-05-324 [Reserved]
33-24-05-325 [Reserved]
33-24-05-326 [Reserved]
33-24-05-327 [Reserved]
33-24-05-328 [Reserved]
33-24-05-329 [Reserved]
33-24-05-330 [Reserved]
33-24-05-331 [Reserved]
33-24-05-332 [Reserved]
33-24-05-333 [Reserved]
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33-24-05-337 [Reserved]
33-24-05-338 [Reserved]
33-24-05-339 [Reserved]
33-24-05-340 [Reserved]
33-24-05-341 [Reserved]
33-24-05-342 [Reserved]
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33-24-05-356 [Reserved]
33-24-05-357 [Reserved]
33-24-05-358 [Reserved]
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33-24-05-01. Purpose, scope, and applicability.

1. The purpose of this chapter is to establish minimum standards which define the acceptable management of hazardous waste.

2. The standards in this chapter apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste, except as specifically provided otherwise in this chapter or chapter 33-24-02.

3. The requirements of this chapter apply to a person disposing of hazardous waste by means of underground injection subject to a permit issued under an underground injection control program approved or promulgated under the Safe Drinking Water Act only to the extent they are required by chapter 33-24-06.

4. The requirements of this chapter apply to the owner or operator of a publicly owned treatment works which treats, stores, or disposes of hazardous waste only to the extent they are included in a hazardous waste permit by rule granted to such a person under chapter 33-24-06.

5. The requirements of this chapter apply to recyclable materials used in a manner constituting disposal, hazardous waste burned for energy recovery, recyclable materials utilized for precious metal recovery, and spent lead acid batteries being reclaimed.

6. The requirements of this chapter do not apply to:

   a. The owner or operator of a facility permitted, licensed, or registered by the department to manage municipal or industrial solid waste, if the only hazardous waste the facility treats, stores, or disposes of, is excluded from regulation under section 33-24-02-05.

   b. The owner or operator of a facility managing recyclable materials described in subdivisions b, c, and d of subsection 1 of section 33-24-02-06 (except to the extent they are referred to in sections 33-24-05-600 through 33-24-05-689 or sections 33-24-05-201 through 33-24-05-~~219~~209 and

sections 33-24-05-235 through 33-24-05-249).

c. A generator accumulating waste onsite in compliance with section 33-24-03-12.

d. A farmer disposing of pesticide containers from the farmer's own use in compliance with section 33-24-03-40.

e. The owner or operator of a totally enclosed treatment facility, as defined in section 33-24-01-04.

f. The owner or operator of an elementary neutralization unit or a wastewater treatment unit as defined in section 33-24-01-04, provided that if the owner or operator is diluting hazardous ignitable (D001) wastes (other than the D001 high ~~total organiccompound subcategory defined in section 33-24-05-282, table 2), or corrosive (D002) waste, to remove the characteristic before land disposal, the owner or operator must comply with the requirements set out in subsection 2 of section 33-24-05-08.~~ total organic carbon subcategory defined in section 33-24-05-280, table treatment standards for hazardous wastes, or reactive (D003) waste, to remove the characteristic before land disposal, the owner or operator must comply with the requirements set out in subsection 2 of section 33-24-05-08.

g. Immediate response activities.

(1) Except as provided in paragraph 2, a person engaged in treatment or containment activities during immediate response to any of the following situations:

(a) A discharge of hazardous waste.

(b) An imminent and substantial threat of a discharge of hazardous waste.

(c) A discharge of material which, when discharged, becomes a hazardous waste.

(2) An owner or operator of a facility otherwise regulated by this chapter shall comply with all applicable requirements of sections 33-24-05-15 through 33-24-05-36.

(3) Any person who is covered by paragraph 1 and continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of this chapter and chapters 33-24-06 and 33-24-07.

h. A transporter storing manifested shipments of hazardous waste in containers meeting the requirements of section 33-24-03-08 at a transfer facility for a period of ten days or less.

i. The addition of absorbent material to waste in a container (as defined in section 33-24-01-04) or the addition of waste to absorbent material in a container provided that these actions occur at the time waste is first placed in a container, and subsection 2 of section 33-24-05-08 and sections 33-24-05-90 and 33-24-05-91 are complied with.

j. Universal waste handlers and universal waste transporters (as defined in section 33-24-01-04) handling the wastes listed below. These handlers are subject to regulation under sections 33-24-05-701 through 33-24-05-765, when handling the below listed universal wastes.

(1) Batteries as described in section 33-24-05-702;

(2) Pesticides as described in section 33-24-05-703; and

(3) Mercury containing devices as described in section 33-24-05-704.

7. The requirements of this chapter apply to owners or operators of all facilities which treat, store, or dispose of hazardous wastes referred to in sections 33-24-05-250 through 33-24-05-300.

8. Subsection 2 of section 33-24-05-09 applies only to facilities subject to regulation under sections 33-24-05-89 through 33-24-05-317 and sections 33-24-05-300 through 33-24-05-303.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-02. Identification number and permit. Every facility owner or operator shall apply to the department for an identification number and a permit. The department may assess and collect reasonable fees for the review and issuance of permits.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03, 23-20.3-05.1
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-05.1

33-24-05-03. Required notices.

1. The owner or operator of a facility that has arranged to receive hazardous waste from a foreign source shall notify the department and the environmental protection agency in writing at least four weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.

2. Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the postclosure care period, the owner or operator shall notify the new owner or operator in writing of the

requirements in this chapter.

3. The owner or operator of a facility that receives hazardous waste from an offsite source (except where the owner or operator is also the generator) shall inform the generator in writing that the owner or operator has the appropriate permit for, and will accept, the waste the generator is shipping. The owner or operator shall keep a copy of this written notice as part of the operating record.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-04. General waste analysis.

1. Waste analysis requirements.

   a. Before an owner or operator treats, stores, or disposes of any hazardous waste, the owner or operator shall obtain a detailed chemical and physical analysis of a representative sample of the waste. At a minimum this analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of this chapter or a permit issued under chapter 33-24-06.

   b. The analysis may include data developed under chapter 33-24-02 and existing published or documented data on the hazardous waste or on waste generated from similar processes. (Comment: For example, the facility's records of analysis performed on the waste before the effective date of these rules, or studies conducted on hazardous wastes generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with subdivision a of subsection 1. The owner or operator of an offsite facility may arrange for the generator of the hazardous waste to supply part of the information required by subdivision a of subsection 1, except as otherwise specified in subsections 2 and 3 of section 33-24-05-256. If the generator does not supply the information, and the owner or operator chooses to accept a hazardous waste, the owner or operator is responsible for obtaining the information required to comply with this section.)

   c. The analysis must be repeated as necessary to ensure that it is accurate and up-to-date. At a minimum, the analysis must be repeated:

      (1) When the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous waste has changed; and

      (2) For offsite facilities when the results of the inspection required in subdivision d indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying

manifest or shipping paper.

d. The owner or operator of an offsite facility shall inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

2. The owner or operator shall develop and follow a written waste analysis plan which describes the procedures which the owner or operator will carry out to comply with subsection 1. The owner or operator must keep this plan at the facility. At a minimum, the plan must specify:

   a. The parameters for which each hazardous waste will be analyzed and the rationale for the selection of these parameters, for example, how analysis for these parameters will provide sufficient information on the waste's properties to comply with subsection 1.

   b. The test methods which will be used to test for these parameters.

   c. The sampling method which will be used to obtain a representative sample of the waste to be analyzed. A representative sample may be obtained using either:

      (1) One of the sampling methods described in appendix I of chapter 33-24-02; or

      (2) An equivalent sampling method.

   d. The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up-to-date.

   e. For offsite facilities the waste analysis that hazardous waste generators have agreed to supply.

   f. Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in sections 33-24-05-08, 33-24-05-145, 33-24-05-183, 33-24-05-256, subsection 4 of section 33-24-05-404, ~~and~~ subsection 4 of section 33-24-05-433~~.~~ , and section 33-24-05-453.

   g. For surface impoundments exempted from land disposal restrictions under subsection 1 of section 33-24-05-253, the procedures and schedules for:

      (1) The sampling of impoundment contents;

      (2) The analyses of test data; and

      (3) The annual removal of residues which are not delisted under section 33-24-01-08 or which exhibit a characteristic of hazardous waste and either:

(a) Do not meet applicable treatment standards of sections 33-24-05-280 through 33-24-05-289; or

(b) Where no treatment standards have been established;

[1] Such residues are prohibited from land disposal under section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(b); or

[2] Such residues are prohibited from land disposal under subsection 6 of section 33-24-05-273.

h. For owners and operators seeking an exemption to the air emission standards of sections 33-24-05-450 through 33-24-05-474 in accordance with section 33-24-05-452:

(1) If direct measurement is used for the waste determination, the procedures and schedules for waste sampling and analysis, and the results of the analysis of test data to verify the exemption.

(2) If knowledge of the waste is used for the waste determination, any information prepared by the facility owner or operator or by the generator of the hazardous waste, if the waste is received from offsite, that is used as the basis for knowledge of the waste.

3. For offsite facilities, the waste analysis plan required in subsection 2 must also specify the procedures which will be used to inspect and analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan must describe:

a. The procedures which will be used to determine the identity of each movement of waste managed at the facility.

b. The sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling.

c. The procedures that the owner or operator of an offsite landfill receiving containerized hazardous waste will use to determine whether a hazardous waste generator or treater has added a biodegradable sorbent to the waste in the container.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-05. Security.

1. The owner or operator shall prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the owner's or operator's facility, unless the owner or operator can demonstrate to the department that:

   a. Physical contact with the waste, structures, or equipment with the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of the facility.

   b. Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of this chapter.

2. Unless exempt under subdivisions a and b of subsection 1, the facility must have:

   a. A twenty-four-hour surveillance system, ~~e.g.,~~ for example, television monitoring or surveillance by guards or facility personnel, which continuously monitors and controls entry onto the active portion of the facility; or

   b. Both of the following:

      (1) An artificial or natural barrier, ~~e.g.,~~ for example, a fence in good repair or a fence combined with a cliff, which completely surrounds the active portion of the facility.

      (2) A means to control entry, at all times, through the gates or other entrances to the active portion of the facility, ~~e.g.,~~ for example, an attendant, television monitors, locked entrance, or controlled roadway access to the facility.

3. Unless exempt under subdivisions a and b of subsection 1, a sign with a legend, "Danger - Unauthorized Personnel Keep Out", must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion, and must be legible from a distance of at least twenty-five feet [7.62 meters]. The legend must be written in English and in any other language predominant in the area surrounding the facility. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

History: Effective January 1, 1984; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-06. General inspection requirements.

1. The owner or operator shall inspect the facility for malfunctions and

deterioration, operator errors, and discharges which may be causing or may lead to release of hazardous waste constituents to the environment, or a threat to human health. The owner or operator shall conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

2. Schedule requirements.

   a. The owner or operator shall develop and follow a written schedule for inspecting all monitoring equipment, safety, and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

   b. The owner or operator shall keep this schedule at the facility.

   c. The schedule must identify the types of problems, ~~e.g.,~~ for example, malfunctions or deterioration, which are to be looked for during the inspection, ~~e.g.,~~ for example, inoperative sump pump, leaking fitting, eroding dike, etc.

   d. The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction of any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the terms and frequencies called for in sections 33-24-05-93, 33-24-05-106, 33-24-05-108, 33-24-05-~~117~~ 120, 33-24-05-132, 33-24-05-150, 33-24-05-165, 33-24-05-178, 33-24-05-302, 33-24-05-403, 33-24-05-422, 33-24-05-423, ~~and~~ 33-24-05-428~~,~~ ,33-24-05-458, and 33-24-05-461.2, where applicable.

3. The owner or operator shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.

4. The owner or operator shall record inspections in an inspection log or summary. The owner or operator shall keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

History: January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-07. Personnel training.

1. Initial training requirements.

   a. Facility personnel shall successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of these rules. The owner or operator shall ensure that this program includes all the elements described in the document required under subdivision c of subsection 4.

   b. This program must be directed by a person trained in hazardous waste management procedures, and must include instruction which teaches facility personnel hazardous waste management procedures, including contingency plan implementation, relevant to the positions in which they are employed.

   c. At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including where applicable:

      (1) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment.

      (2) Key parameters for automatic waste feed cutoff systems.

      (3) Communications or alarm systems.

      (4) Response to fires or explosions.

      (5) Response to ground water contamination incidents.

      (6) Shutdown of operations.

2. Facility personnel shall successfully complete the program required in subsection 1 within six months after January 1, 1984, or six months after the date of their employment or assignment to a facility, or to a new position at a facility, whichever is later. Employees hired after January 1, 1984, may not work in unsupervised positions until they have completed the training requirements of subsection 1.

3. Facility personnel shall take part in an annual review of the initial training required in subsection 1.

4. The owner or operator shall maintain the following documents and records at the facility:

   a. The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job.

b. A written job description for each position listed under subdivision a. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications and duties of facility personnel assigned to each person.

c. A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed under subdivision a.

d. Records that document that the training or job experience required under subsection 1, 2, and 3 has been given to, and completed by, facility personnel.

5. Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

History: January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-08. General requirements for ignitable, reactive, or incompatible wastes.

1. The owner or operator shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including, but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (~~e.g.,~~ for example, from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator shall confine smoking and open flames to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive wastes.

2. Where specifically required by other sections of this chapter, the treatment, storage, or disposal of ignitable or reactive waste, and the mixture or commingling of incompatible wastes, or incompatible wastes and materials, must be conducted so that it does not:

   a. Generate extreme heat or pressure, fire or explosion, or violent reaction;

   b. Produce uncontrolled toxic mists, fumes, dust, or gases in sufficient quantity to threaten human health or the environment;

   c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

d. Damage the structural integrity of the device or facility, or

e. Through other like means threaten human health or the environment.

3. When required to comply with subsection 1 or 2, the owner or operator shall document that compliance. This documentation may be based on references to published scientific or engineering literature data, from trial tests (~~e.g.,~~ for example, bench scale or pilot scale tests), waste analysis (as specified in section 33-24-05-04), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-09. Location standards.

1. The department will not issue a permit to any facility which is or will be constructed in a location with a geology, hydrogeology, hydrology, or topography which the department reasonably believes is incompatible with the type of hazardous waste management activity occurring or proposed to occur. Locations which are specifically within the meaning of this section include but are not limited to floodplains, ground water recharge areas, highly permeable soils, high ground water tables, and areas of high topographic relief.

2. The placement of any noncontainerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine, or cave is prohibited.

History: Effective January 1, 1984; amended effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-10. Construction quality assurance program.

1. CQA program.

a. A construction quality assurance program is required for all surface impoundment, waste pile, and landfill units that are required to comply with subsections 3 and 4 of section 33-24-05-~~116~~ 119, subsections 3 and 4 of section 33-24-05-131, and subsections 3 and 4 of section 33-24-05-177. The program must ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program must be developed and implemented under the direction of a construction quality assurance program officer who is a registered professional engineer.

b. The construction quality assurance program must address the following

physical components, where applicable:

(1) Foundations;

(2) Dikes;

(3) Low-permeability soil liners;

(4) Geomembranes (flexible membrane liners);

(5) Leachate collection and removal systems and leak detection systems; and

(6) Final cover systems.

2. Written construction quality assurance plan. The owner or operator of units subject to the construction quality assurance program under subsection 1 must develop and implement a written construction quality assurance plan. The plan must identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The construction quality assurance plan must include:

a. Identification of applicable units and a description of how they will be constructed.

b. Identification of key personnel in the development and implementation of the construction quality assurance plan and construction quality assurance officer qualifications.

c. A description of inspection and sampling activities for all unit components identified in subdivision b of subsection 1, including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description must cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded and retained in the operating record under section 33-24-05-40.

3. Contents of program.

a. The construction quality assurance program must include observations, inspections, tests, and measurements sufficient to ensure:

(1) Structural stability and integrity of all components of the unit identified in subdivision b of subsection 1;

(2) Proper construction of all components of the liners, leachate collection and removal system, leak detection system, and final cover system, according to permit specifications and good

engineering practices, and proper installation of all components (~~e.g.,~~ for example, pipes) according to design specifications; and

(3) Conformity of all materials used with design and other material specifications under sections 33-24-05-~~116~~ 119, 33-24-05-131, and 33-24-05-177.

b. The construction quality assurance program must include test fills for compacted soil liners, using the same compaction methods as in the full scale unit, to ensure that the liners are constructed to meet the hydraulic conductivity requirements of subparagraph b of paragraph 1 of subdivision a of subsection 3 of section 33-24-05-~~116~~ 119, subparagraph b of paragraph 1 of subdivision a of subsection 3 of section 33-24-05-131, and subparagraph b of paragraph 1 of subdivision 1 of subsection 3 of section 33-24-05-177 in the field. Compliance with the hydraulic conductivity requirements must be verified by using in situ testing on the constructed test fill. The department may accept an alternative demonstration, in lieu of a test fill, where data are sufficient to show that a constructed soil liner will meet the hydraulic conductivity requirements of subparagraph b of paragraph 1 of subdivision a of subsection 3 of section 33-24-05-~~116~~ 119, subparagraph b of paragraph 1 of subdivision a of subsection 3 of section 33-24-05-131, and subparagraph b of paragraph 1 of subdivision a of subsection 3 of section 33-24-05-177 in the field.

4. Certification. Waste shall not be received in a unit subject to section 33-24-05-10 until the owner or operator has submitted to the department by certified mail or hand delivery a certification signed by the construction quality assurance officer that the approved construction quality assurance plan has been successfully carried out and that the unit meets the requirements of subsection 3 or 4 of section 33-24-05-~~116~~ 119, subsection 3 or 4 of section 33-24-05-131, or subsection 3 or 4 of section 33-24-05-177; and the procedure in paragraph 2 of subdivision b of subsection 12 of section 33-24-06-04 has been completed. Documentation supporting the construction quality assurance officer's certification must be furnished to the department upon request.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-11. [Reserved]

33-24-05-12. [Reserved]

33-24-05-13. [Reserved]

33-24-05-14. [Reserved]

33-24-05-15. Design and operation of facility. Facilities must be designed,

constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-16. Required equipment. All facilities must be equipped with the following, unless it can be demonstrated to the department that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

1. An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.

2. A device, such as a telephone (immediately available at the scene of operations), or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams.

3. Portable fire extinguishers, fire control equipment, including special extinguishing equipment (such as that using foam, inert gas, or dry chemicals), spill control equipment and decontamination equipment.

4. Water at adequate volume and pressure to supply water hose streams, foam-producing equipment, automatic sprinklers, or water spray systems.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-17. Testing and maintenance of equipment. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary, to ensure its proper operation in time of emergency.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-18. Access to communications or alarm system.

1. When hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, unless such a device is not required

under section 33-24-05-16.

2. If there is ever just one employee on the premises while the facility is operating, the employee must have immediate access to a device, such as a telephone, immediately available at the scene of the operation, or a hand-held two-way radio, capable of summoning external emergency assistance, unless such a device is not required under section 33-24-05-16.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-19. Required aisle space. The owner or operator shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless it can be demonstrated to the department that aisle space is not needed for any of these purposes.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-20. Arrangements with local authorities.

1. The owner or operator shall attempt to make the following arrangements, as appropriate for the types of waste handled at the facility and the potential need for the services of these organizations:

   a. Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazardous places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes.

   b. Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department and agreements with any others to provide support to the primary emergency authority.

   c. Agreements with state emergency response teams, emergency response contractors, and equipment suppliers.

   d. Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

2. Where state or local authorities decline to enter into such arrangements, the owner or operator shall document the refusal in the operating record.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-21. [Reserved]

33-24-05-22. [Reserved]

33-24-05-23. [Reserved]

33-24-05-23. [Reserved]

33-24-05-24. [Reserved]

33-24-05-25. [Reserved]

33-24-05-26. Purpose and implementation of contingency plan.

1. Each owner or operator shall have a contingency plan for the facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

2. The provisions of the plan must be carried out immediately when there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-27. Content of contingency plan.

1. The contingency plan must describe the actions facility personnel must take to comply with sections 33-24-05-26 and 33-24-05-31 in response to fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous constituents to air, soil, or surface water at the facility.

2. If the owner or operator has already prepared some other emergency or contingency plan, the owner or operator need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with these requirements.

3. The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services, pursuant to section 33-24-05-20.

4. The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator and this list must be kept up to date. Where more than one is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates.

5. The plan must include a list of all emergency equipment at the facility, such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment, where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.

6. The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signals to be used to begin evacuation, evacuation routes, and alternate evacuation routes, in cases where the primary routes could be blocked by releases of hazardous waste or fires.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-28. Copies of contingency plan. A copy of the contingency plan and all revisions to the plan must be:

1. Maintained at the facility; and

2. Submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-29. Amendment of contingency plan. The contingency plan must be reviewed, and immediately amended, if necessary, when:

1. The facility permit is revised;

2. The plan fails in an emergency;

3. The facility changes in its design, construction, operation, maintenance, or other circumstances, in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

4. The list of emergency coordinators changes; or

5. The list of emergency equipment changes.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-30. Emergency coordinator. At all times, there must be at least one employee either on the facility premises or on call, for example, available to respond to an emergency by reaching the facility within a short period of time, with the responsibility for coordinating all emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of wastes handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-31. Emergency procedures.

1. ~~Whenever~~ When there is an imminent or actual emergency situation, the emergency coordinator, or the coordinator's designee when the emergency coordinator is on call, shall immediately:

   a. Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel.

   b. Notify appropriate state or local agencies with designated response roles if their help is needed.

2. ~~Whenever~~ When there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact source, amount, and areal extent of any released materials. The emergency coordinator may do this by observation or review of facility records or manifests and, if necessary, by chemical analysis.

3. Concurrently, the emergency coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion, ~~e.g.,~~ for example, the effects of any toxic irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water runoffs from water or chemical agents used to control fire and heat-induced explosions.

4. If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, the emergency coordinator shall report his findings as

follows:

a. If the coordinator's assessment indicates that evacuation of local areas may be advisable, the coordinator shall immediately notify appropriate local authorities. The coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

b. The coordinator shall immediately notify either the government official designated as the on-scene coordinator for that geographical area or the national response center (using their twenty-four-hour toll-free number 800-424-8802). The report must include:

(1) Name and telephone number of reporter.

(2) Name and address of facility.

(3) Time and type of incident, ~~e.g.,~~ for example, release, fire.

(4) Name and quantity of materials involved, to the extent known.

(5) The extent of injuries, if any.

(6) The possible hazard to human health or the environment, outside the facility.

5. During an emergency, the emergency coordinator shall take all reasonable measures to ensure that fires, explosions, and releases do not occur, recur or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

6. If the facility stops operations in response to a fire, an explosion or release, the emergency coordinator shall monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

7. Immediately after an emergency, the emergency coordinator shall provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

8. The emergency coordinator shall ensure that, in the affected areas of the facility:

a. No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

b. All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

9. The owner or operator shall notify the department and other appropriate state

and local authorities, that the facility is in compliance with subsection 8 of this section before operations are resumed in the affected areas of the facility.

10. The owner or operator shall note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within fifteen days after the incident, the owner or operator must submit a written report on the incident to the department. The report must include:

    a. Name, address, and telephone number of the owner or operator.

    b. Name, address, and telephone number of the facility.

    c. Date, time, and type of incident, ~~e.g.,~~ for example, fire, explosion.

    d. Name and quantity of materials involved.

    e. The extent of injuries, if any.

    f. An assessment of actual or potential hazards to human health or the environment, where this is applicable.

    g. Estimated quantity and disposition of recovered material that resulted from the incident.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-32. [Reserved]

33-24-05-33. [Reserved]

33-24-05-34. [Reserved]

33-24-05-35. [Reserved]

33-24-05-36. [Reserved]

33-24-05-37. Applicability of manifest system, recordkeeping, and reporting requirements. Sections 33-24-05-37 through 33-24-05-46 apply to owners and operators of both onsite and offsite facilities except as section 33-24-05-01 provides otherwise. Sections 33-24-05-38, 33-24-05-39 and 33-24-05-43 do not apply to owners and operators of onsite facilities that do not receive any hazardous waste from offsite sources. Subsection 2 of section 33-24-05-40 only applies to permittees who treat, store, or dispose of hazardous waste onsite where such wastes were generated.

History: Effective January 1, 1984; amended effective October 1, 1986.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-38. Use of manifest system.

1. If a facility receives hazardous waste accompanied by a manifest, the owner or operator, or the owner's or operator's agent, shall:

   a. Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received.

   b. Note any significant discrepancies in the manifest, as defined in subsection 1 of section 33-24-05-39, on each copy of the manifest.

   c. Immediately give the transporter at least one copy of the signed manifest.

   d. Within thirty days after the delivery, send a copy of the manifest to the generator.

   e. Retain at the facility a copy of each manifest for at least three years from the date of delivery.

2. If a facility receives, from a rail or water (bulk shipment) transporter, hazardous waste which is accompanied by a shipping paper containing all the information required on the manifest (excluding the identification numbers, generator's certification, and signatures), the owner or operator, or the owner's or operator's agent shall:

   a. Sign and date each copy of the manifest or shipping paper (if the manifest has not been received) to certify that the hazardous waste covered by the shipping paper was received.

   b. Note any significant discrepancies (as defined in subsection 1 of section 33-24-05-39) in the manifest or shipping paper on each copy of the manifest or shipping paper.

   c. Immediately give the rail or water (bulk shipment) transporter at least one copy of the manifest or shipping paper.

   d. Within thirty days after the delivery, send a copy of the manifest to the generator; however, if the manifest has not been received within thirty days after delivery, the owner or operator, or the owner's or operator's agent, must sign and date the shipping paper and return it to the generator.

   e. Retain at the facility a copy of each shipping paper and manifest for at least three years from the date of delivery.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-39. Manifest discrepancies.

1. Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste a facility actually receives. Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvents substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper. Significant discrepancies in quantity are:

   a. For bulk wastes, variations greater than ten percent in weight.

   b. For batch wastes, any variation in piece count, such as a discrepancy of one drum in a truckload.

2. Upon discovering a significant discrepancy, the owner or operator shall attempt to reconcile the discrepancy with the waste generator or transporter, ~~e.g.,~~ for example, with telephone conversations. If the discrepancy is not resolved within fifteen days after receiving the waste, the owner or operator shall immediately submit to the department a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-40. Operating record.

1. The owner or operator shall keep a written operating record at the facility.

2. The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility:

   a. A description and quantity of each hazardous waste received and the methods and dates of its treatment, storage, or disposal at the facility as required by appendix I.

   b. The location of each hazardous waste within the facility and the quantity at each location. For disposal facilities, the location and quantity of each hazardous waste must be recorded on a map or diagram of each cell or disposal area. For all facilities, this information must include cross-reference to specific manifest document numbers, if the waste was accompanied by a manifest.

   c. Records and results of waste analysis and ~~trial tests~~ waste determinations performed as specified in sections 33-24-05-04, 33-24-05-

08, 33-24-05-145, 33-24-05-183, subsection 1 of section 33-24-05-253, sections 33-24-05-256, 33-24-05-404, ~~and~~ 33-24-05-433~~.~~ , and 33-24-05-453.

d. Summary reports and details of all incidents that require implementing the contingency plan as specified in subsection 10 of section 33-24-05-31.

e. Records and results of inspections as required by subsection 4 of section 33-24-05-06 (except these data need to be kept only three years).

f. Monitoring, testing, or analytical data, and corrective action where required by sections 33-24-05-47 through 33-24-05-58, and sections 33-24-05-10, 33-24-05-104, 33-24-05-106, 33-24-05-108, 33-24-05-~~117~~ 120, 33-24-05-~~123~~ 126, 33-24-05-~~124~~ 127, 33-24-05-132, 33-24-05-137, 33-24-05-138, 33-24-05-150, 33-24-05-164, 33-24-05-165, 33-24-05-167, 33-24-05-178, 33-24-05-179, 33-24-05-187, 33-24-05-188, 33-24-05-302, subsections 3 through 6 of section 33-24-05-404, 33-24-05-405, subsections 4 through 9 of section 33-24-05-433, ~~and section~~ sections 33-24-05-434~~.~~, 33-24-05-458, and 33-24-05-459.

g. For offsite facilities, notices to generators as specified in subsection 2 of section 33-24-05-03.

h. All closure and postclosure cost estimates under section 33-24-05-76.

i. A certification by the permittee no less often than annually, that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that is generated to the degree determined by the permittee to be economically practicable; and the proposed method of treatment, storage, or disposal is that practicable method currently available to the permittee which minimizes the present and future threat to human health and the environment.

j. Records of the quantities and date of placement for each shipment of hazardous waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted pursuant to section 33-24-05-254, a petition pursuant to section 33-24-05-255, or a certification under section 33-24-05-257, and the applicable notice required by a generator under subsection 1 of section 33-24-05-256.

k. For an offsite treatment facility, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under section 33-24-05-256 or 33-24-05-257.

l. For an onsite treatment facility, the information contained in the notice except the manifest number, and the certification and demonstration, if applicable, required by the generator or the owner or operator under section 33-24-05-256 or 33-24-05-257.

m. For an offsite land disposal facility, a copy of the notice, and the

certification and demonstration, if applicable, required by the generator or the owner or operator of a treatment facility under section 33-24-05-256 or 33-24-05-257, whichever is applicable.

n. For an onsite land disposal facility, the information contained in the notice required by the generator or owner or operator of a treatment facility under section 33-24-05-256, except for the manifest number, and the certification and demonstration, if applicable, required under section 33-24-05-257, whichever is applicable.

o. For an offsite storage facility, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under section 33-24-05-256 or 33-24-05-257.

p. For an onsite storage facility, the information contained in the notice except the manifest number, and the certification and demonstration, if applicable, required by the generator or the owner or operator under section 33-24-05-256 or 33-24-05-257.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-41. Availability, retention, and disposition of records.

1. All records, including plans, required under this chapter must be furnished upon request, and made available at all reasonable times for inspection, by a duly designated officer, employee or representative of the department.

2. The retention period for all records is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the department.

3. A copy of records of waste disposal locations and quantities under subdivision b of subsection 2 of section 33-24-05-40 must be submitted to the department and local land authority upon closure of the facility.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-42. ~~Annual~~ Biennial report. The owner or operator shall prepare and submit a single copy of ~~an annual~~ a biennial report to the department by March first of each year. The report form and instructions can be obtained from the department's division of waste management. The ~~annual~~ biennial report must cover facility activities during the previous calendar year and must include the following information:

1. The identification number, name, and address of the facility.

2. The calendar year covered by the report.

3. For offsite facilities, identification number of each hazardous waste generator from which the facility received a hazardous waste during the year; for imported shipments, the report must give the name and address of the foreign generator.

4. A description and quantity of each hazardous waste the facility received during the year. For offsite facilities, this information must be listed by identification number of each generator.

5. The method of treatment, storage, or disposal for each hazardous waste.

6. Any ground water monitoring data which the owner or operator is required to collect under section 33-24-05-55, 33-24-05-56, or 33-24-05-57, and which the owner or operator has not otherwise submitted to the department under those sections.

7. The most recent closure and postclosure cost estimate under section 33-24-05-76.

8. For generators who treat, store, or dispose of hazardous waste onsite, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated.

9. For generators who treat, store, or dispose of hazardous waste onsite, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984.

10. The certification signed by the owner or operator of the facility or the owner's or operator's authorized representative.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-43. Unmanifested waste report. If a facility accepts for treatment, storage, or disposal any hazardous waste from an offsite source without an accompanying manifest, or without an accompanying shipping paper as described in subdivision b of subsection 5 of section 33-24-04-04 and if the waste is not excluded from the manifest requirement by section 33-24-02-05, then the owner or operator shall prepare and submit a single copy of a report to the department within fifteen days after receiving the waste. The report must be designated "Unmanifested Waste Report" and must include the following information:

1. The identification number, name, and address of the facility.

2. The date the facility received the waste.

3. The identification number, name, and address of the generator and the transporter, if available.

4. A description and the quantity of each unmanifested hazardous waste the facility received.

5. The method of treatment, storage, or disposal for each hazardous waste.

6. The certification signed by the owner or operator of the facility or the owner's or operator's authorized representative.

7. A brief explanation of why the waste was unmanifested, if known.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-44. Additional reports. In addition to submitting the ~~annual~~ biennial reports and unmanifested waste reports described in sections 33-24-05-42 and 33-24-05-43, the owner or operator shall also report to the department:

1. Releases, fires, and explosions as specified in subsection 10 of section 33-24-05-31.

2. Facility closures specified in section 33-24-05-64.

3. As otherwise required by sections 33-24-05-47 through 33-24-05-58, 33-24-05-115 through 33-24-05-143, 33-24-05-160 through 33-24-05-200, ~~and~~ 33-24-05-400 through 33-24-05-449~~.~~ , 33-24-05-474 and 33-24-05-560 through 33-24-05-574.

History: Effective January 1, 1984; amended effective December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-45. [Reserved]

33-24-05-46. [Reserved]

33-24-05-47. Applicability of ground water protection requirements.

1. Applicability.

   a. Except as provided in subsection 2, the rules in this chapter apply to owners or operators of facilities that treat, store, or dispose of hazardous waste. The owner or operator must satisfy the requirements identified in subdivision b of subsection 1 for all wastes (or constituents thereof) contained in solid waste management units at the facility, regardless of the time at which waste was placed in such units.

b. All solid waste management units must comply with the requirements in section 33-24-05-58. A surface impoundment, waste pile, and land treatment unit, or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a "regulated unit") must comply with the requirements of sections 33-24-05-48 through 33-24-05-57 in lieu of section 33-24-05-58 for purposes of detecting, characterizing, and responding to releases to the uppermost aquifer. The financial responsibility requirements of section 33-24-05-58 apply to regulated units.

2. The owner's or operator's regulated unit or units, are not subject to regulation for releases into the uppermost aquifer under this chapter if:

   a. The owner or operator is exempted under section 33-24-05-01; or

   b. He operates a unit which the department finds:

      (1) Is an engineered structure;

      (2) Does not receive or contain liquid waste or waste containing free liquids;

      (3) Is designed and operated to exclude liquid, precipitation, and other run-on and runoff;

      (4) Has both inner and outer layers of containment enclosing the waste;

      (5) Has a leak detection system built into each containment layer;

      (6) The owner or operator will provide continuing operation and maintenance of these leak detection systems during the active life of the unit and the closure and postclosure care periods; and

      (7) To a reasonable degree of certainty, will not allow hazardous constituents to migrate beyond the outer containment layer prior to the end of the postclosure care period;

   c. The department finds, pursuant to subsection 4 of section 33-24-05-167, that the treatment zone of a land treatment unit that qualifies as a regulated unit does not contain levels of hazardous constituents that are above background levels of those constituents by an amount that is statistically significant, and if an unsaturated zone monitoring program meeting the requirements of section 33-24-05-165 has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under this section can only relieve an owner or operator of responsibility to meet the requirements of this chapter during the postclosure care period;

   d. The department finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the postclosure

care period specified under section 33-24-05-65. This demonstration must be certified by a qualified geologist or geotechnical engineer. In order to provide an adequate margin of safety in the prediction of potential migration of liquid, the owner or operator shall base any predictions made under this section on assumptions that maximize the rate of liquid migration; or

e. He designs and operates a pile in compliance with subsection 3 of section 33-24-05-130.

3. The ground water protection requirements apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, the ground water protection requirements:

   a. Do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure;

   b. Apply during the postclosure care period under section 33-24-05-65 if the owner or operator is conducting a detection monitoring program under section 33-24-05-55; or

   c. Apply during the compliance period under section 33-24-05-53 if the owner or operator is conducting a compliance monitoring program under section 33-24-05-56 or a corrective action program under section 33-24-05-57.

4. Rules in this chapter may apply to miscellaneous units when necessary to comply with sections 33-24-05-301 through 33-24-05-303.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-48. Required programs.

1. Owners and operators subject to the ground water protection requirements shall conduct a monitoring and response program as follows:

   a. When hazardous constituents under section 33-24-05-50 from a regulated unit are detected at a compliance point under section 33-24-05-52, the owner or operator must institute a compliance monitoring program under section 33-24-05-56. Detected is defined as statistically significant evidence of contamination as described in subsection 6 of section 33-24-05-55;

   b. When the ground water protection standard under section 33-24-05-49 is exceeded, the owner or operator must institute a corrective action program under section 33-24-05-57. Exceeded is defined as statistically significant evidence of increased contamination as described in

subsection 4 of section 33-24-05-56;

c. When hazardous constituents under section 33-24-05-50 from a regulated unit exceed concentration limits under section 33-24-05-51 in ground water between the compliance point under section 33-24-05-52 and the downgradient facility boundary property, the owner or operator shall institute a corrective action program under section 33-24-05-57; or

d. In all other cases, the owner or operator shall institute a detection monitoring program under section 33-24-05-55.

2. The department will specify in the facility permit the specific elements of the monitoring and response program. The department may include one or more of the programs identified in subsection 1 in the facility permit as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. In deciding whether to require the owner or operator to be prepared to institute a particular program, the department will consider the potential adverse effects on human health and the environment that might occur before final administrative action on a permit modification application to incorporate such a program could be taken.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-49. Ground water protection standard. The owner or operator must comply with conditions specified in the facility permit designed to ensure that hazardous constituents under section 33-24-05-50 detected in the ground water from a regulated unit do not exceed the concentration limits under section 33-24-05-51 in the uppermost aquifer underlying the waste management area beyond the point of compliance under section 33-24-05-52 during the compliance period under section 33-24-05-53. The department will establish this ground water protection standard in the facility permit when hazardous constituents have been detected in the ground water.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-50. Hazardous constituents.

1. The department will specify in the facility permit the hazardous constituents to which the ground water protection standard of section 33-24-05-49 applies. Hazardous constituents are constituents identified in appendix V of chapter 33-24-02 that have been detected in ground water in the uppermost aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the department has excluded them under subsection 2.

2. The department will exclude an appendix V (of chapter 33-24-02) constituent from the list of hazardous constituents specified in the facility permit if it finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to grant an exemption, the department will consider the following:

   a. Potential adverse effects on ground water quality, considering:

      (1) The physical and chemical characteristics of the waste in the regulated units, including its potential for migration.

      (2) The hydrogeological characteristics of the facility and surrounding land.

      (3) The quantity of ground water and the direction of ground water flow.

      (4) The proximity and withdrawal rates of ground water users.

      (5) The current and future uses of ground water in the area.

      (6) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality.

      (7) The potential for health risks caused by human exposure to waste constituents.

      (8) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

      (9) The persistence and permanence of the potential adverse effect.

   b. Potential adverse effects on hydraulically connected surface water quality, considering:

      (1) The volume and physical and chemical characteristics of the waste in the regulated unit.

      (2) The hydrogeological characteristics of the facility and surrounding land.

      (3) The quantity and quality of ground water, and the direction of ground water flow.

      (4) The patterns of rainfall in the region.

      (5) The proximity of the regulated unit to surface water.

      (6) The current and future uses of surface water in the area and any water quality standards established for those surface waters.

(7) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality.

(8) The potential for health risks caused by human exposure to waste constituents.

(9) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

(10) The persistence and permanence of the potential adverse effects.

3. In making any determination under subsection 2 about the use of ground water in the area around the facility, the department will consider any identification of underground sources of drinking water and exempted aquifers made under provisions of the Safe Drinking Water Act and 40 CFR ~~122.35~~ 144.8.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-51. Concentration limits.

1. The department will specify in the facility permit concentration limits in the ground water for hazardous constituents established under section 33-24-05-50. The concentration of a hazardous constituent:

   a. May not exceed the background level of that constituent in the ground water at the time that limit is specified in the permit;

   b. For any of the constituents listed in table 1, may not exceed the respective value given in that table if the background level of the constituent is below the value given in table 1; or

   c. May not exceed an alternate limit established by the department under subsection 2.

Table 1. Maximum Concentration of Constituents for Ground Water Protection

Constituent	Maximum Concentration mg/l
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05

Endrin (1, 2, 3, 4, 10, 10-hexachloro-1, 7-epoxy-1, 4, 4a, 5, 6, 7, 8, 9a -octahydro-1, 4-endo, endo-5, 8-dimethano naphthalene)	0.0002
Lindane (1, 2, 3, 4, 5, 6-hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1, 1, 1 - trichloro - 2, 2 - bis [p - methoxyphenyl] ethane)	0.1
Toxaphene (C_{10} H_{10} Cl_8 technical clorinated camphene, 67-69% chlorine)	0.005
2,4-D (2,4-dichlorophenoxyacetic acid)	0.1
2,4,5 - TP silvex (2,4,5-trichlorophen- oxy propionic acid)	0.01

2. The department will establish an alternate concentration limit for a hazardous constituent if it finds that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the department will consider the following factors:

   a. Potential adverse effects on ground water quality, considering:

      (1) The physical and chemical characteristics of the waste in the regulated unit, including the potential for migration.

      (2) The hydrogeological characteristics of the facility and surrounding land.

      (3) The quantity of ground water and direction of ground water flow.

      (4) The proximity and withdrawal rates of ground water users.

      (5) Current and future uses of ground water in the area.

      (6) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality.

      (7) The potential for health risks caused by human exposure to waste constituents.

      (8) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

      (9) The persistence and permanence of potential adverse effects.

   b. Potential adverse effects on hydraulically connected surface water quality, considering:

      (1) The volume and physical and chemical characteristics of the waste in the regulated unit.

      (2) The hydrogeological characteristics of the facility and surrounding

land.

(3) The quantity and quality of ground water, and the direction of ground water flow.

(4) The patterns of rainfall in the region.

(5) The proximity of the regulated unit to surface waters.

(6) The current and future uses of surface waters in the area and any water quality standards established for those surface waters.

(7) Existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality.

(8) The potential for health risks caused by human exposure to waste constituents.

(9) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

(10) The persistence and permanence of the potential adverse effects.

3. In making any determination under subsection 2 about the use of ground water in the area around the facility the department will consider any identification of underground sources of drinking water and exempted aquifers made under provisions of the Safe Drinking Water Act and 40 CFR ~~122.35~~ 144.8.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-52. Point of compliance.

1. The department will specify in the facility permit the point of compliance at which the ground water protection standard of section 33-24-05-49 applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units.

2. The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.

   a. The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.

   b. If the facility contains more than one regulated unit, the waste

management area is described by an imaginary line circumscribing the several regulated units.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-53. Compliance period.

1. The department will specify in the facility permit the compliance period during which the ground water protection standard of section 33-24-05-49 applies. The compliance period is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting, and the closure period).

2. The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of section 33-24-05-56.

3. If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in subsection 1, the compliance period is extended until the owner or operator can demonstrate that the ground water protection standard of section 33-24-05-49 has not been exceeded for a period of three consecutive years.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-54. General ground water monitoring requirements. The owner or operator shall comply with the following requirements for any ground water monitoring program developed to satisfy section 33-24-05-55, 33-24-05-56, or 33-24-05-57:

1. The ground water monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depth to yield ground water samples from the uppermost aquifer that:

   a. Represent the quality of background water that has not been affected by leakage from a regulated unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

      (1) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; and

      (2) Sampling at other wells will provide an indication of background ground water quality that is representative or more representative than that provided by the upgradient wells.

   b. Represent the quality of ground water passing the point of compliance.

c. Allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer.

2. If a facility contains more than one regulated unit, separate ground water monitoring systems are not required for each regulated unit provided that provisions for sampling the ground water in the uppermost aquifer will enable detection and measurement at the compliance point of hazardous constituents from the regulated units that have entered the ground water in the uppermost aquifer.

3. All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground water samples. The annular space, for example, the space between the borehole and well casing, above the sampling depth must be sealed to prevent contamination of samples and the ground water.

4. The ground water monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of ground water quality below the waste management area. At a minimum, the program must include procedures and techniques for:

   a. Sample collection.

   b. Sample preservation and shipment.

   c. Analytical procedures.

   d. Chain of custody control.

5. The ground water monitoring program must include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure hazardous constituents in ground water samples.

6. The ground water monitoring program must include a determination of the ground water surface elevation each time ground water is sampled.

7. In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wells and wells at the compliance points the number and kinds of samples collected to establish background must be appropriate for the form of statistical test employed following generally accepted statistical principles. The sample site must be as large as necessary to ensure with reasonable confidence that a contaminant released to ground water from a facility will be detected. The owner or operator will determine an appropriate sampling procedure and interval for each hazardous constituent listed in the facility permit which must be specified in the unit permit upon approval by the department. This sampling procedure must be:

a. A sequence of at least four samples, taken at an interval that assures, to the greatest extent technically feasible, that an independent sample is obtained, by reference to the uppermost aquifers effective porosity, hydraulic conductivity, and hydraulic gradient, and the fate and transport characteristics of the potential contaminants; or

b. An alternate sampling procedure proposed by the owner or operator and approved by the department.

8. The owner or operator will specify one of the following statistical methods to be used in evaluating ground water monitoring data for each hazardous constituent which, upon approval by the department, will be specified in the unit permit. The statistical test chosen must be conducted separately for each hazardous constituent in each well. Where practical quantification limits are used in any of the following statistical procedures to comply with subdivision e of subsection 9, the practical quantification limits must be proposed by the owner or operator and approved by the department. Use of any of the following statistical methods must be protective of human health and the environment and must comply with the performance standards outlined in subsection 9.

a. A parametric analysis of variance followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance wells mean and the background mean levels for each constituent.

b. An analysis of variance based on ranks followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance wells median and the background median levels for each constituent.

c. A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

d. A control chart approach that gives control limits for each constituent.

e. Another statistical test method submitted by the owner or operator and approved by the department.

9. Any statistical method chosen under subsection 8 of section 33-24-05-54 for specification in the unit permit shall comply with the following performance standards, as appropriate:

a. The statistical method used to evaluate ground water monitoring data must be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be

inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

b. If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground water protection standard, the test must be done at a type one error level no less than one hundredth for each testing period. If a multiple comparisons procedure is used, the type one experiment wise error rate for each testing period must be no less than five hundredths; however, the type one error of no less than one hundredth for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

c. If a control chart approach is used to evaluate ground water monitoring data, the specific type of control chart and its associated parameter values must be proposed by the owner or operator and approved by the department if he or she finds it to be protective of human health and the environment.

d. If a tolerance interval or a prediction interval is used to evaluate ground water monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, must be proposed by the owner or operator and approved by the department if he or she finds these parameters to be protective of human health and the environment. These parameters will be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

e. The statistical method must account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantification limit approved by the department under subsection 8 of section 33-24-05-54 that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

f. If necessary, the statistical method must include procedures to control or correct for seasonal and spacial variability as well as temporal correlation in the data.

10. Ground water monitoring data collected in accordance with subsection 7 including actual levels of constituents must be maintained in the facility operating record. The department will specify in the permit when the data must be submitted for review.

History: Effective January 1, 1984; amended effective December 1, 1991.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-55. Detection monitoring program. An owner or operator required to establish a detection monitoring program shall, at a minimum, discharge the following responsibilities:

1. The owner or operator shall monitor for indicator parameters (~~e.g.,~~ for example, specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in ground water. The department will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:

   a. The types, quantities, and concentrations of constituents in wastes managed at the regulated unit.

   b. The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area.

   c. The detectability of indicator parameters, waste constituents, and reaction products in ground water.

   d. The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the ground water background.

2. The owner or operator shall install a ground water monitoring system at the compliance point under section 33-24-05-52 which complies with subdivision b of subsection 1, and subsections 2 and 3, of section 33-24-05-54.

3. The owner or operator must conduct a ground water monitoring program for each chemical parameter and hazardous constituent specified in the permit pursuant to subsection 1 in accordance with subsection 7 of section 33-24-05-54. The owner or operator must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under subsection 8 of section 33-24-05-54.

4. The department will specify the frequencies for collecting samples and conducting statistical tests to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in the permit under subsection 1 in accordance with subsection 7 of section 33-24-05-54. A sequence of at least four samples from each well (background and compliance wells) must be collected at least semiannually during detection monitoring.

5. The owner or operator shall determine the ground water flow rate and direction in the uppermost aquifer at least annually.

6. The owner or operator must determine whether there is statistically

significant evidence of contamination for any chemical parameter of hazardous constituent specified in the permit pursuant to subsection 1 at a frequency specified under subsection 4.

a. In determining whether statistically significant evidence of contamination exists, the owner or operator must use the methods specified in the permit under subsection 8 of section 33-24-05-54. These methods must compare data collected at the compliance points to the background ground water quality data.

b. The owner or operator must determine whether there is statistically significant evidence of contamination at each monitoring well at the compliance point within a reasonable period of time at the completion of sampling. The department will specify in the facility permit what period of time is reasonable, after considering the complexity of the statistical test and availability of laboratory facilities to perform the analysis of ground water samples.

7. If the owner or operator determines pursuant to subsection 6 that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to subsection 1 at any monitoring well at the compliance point, the owner or operator must:

a. Notify the department of this finding in writing within seven days. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination.

b. Immediately sample the ground water in all monitoring wells and determine whether constituents in the list of appendix IX of chapter 33-24-05 are present, and if so, in what concentration.

c. For any appendix IX compounds found in the analysis pursuant to subdivision b of subsection 7, the owner or operator may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the owner or operator does not resample the compounds found pursuant to subdivision b of subsection 7, the hazardous constituents found during this initial appendix IX analysis will form the basis for compliance monitoring.

d. Within ninety days, submit to the department an application for a permit modification to establish a compliance monitoring program meeting the requirements of section 33-24-05-56. The application must include the following information:

(1) An identification of the concentration or any appendix IX constituent detected in the ground water at each monitoring well at the compliance point.

(2) Any proposed changes to the ground water monitoring system at the

facility necessary to meet the requirements of section 33-24-05-56.

(3) Any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of section 33-24-05-56.

(4) For each hazardous constituent detected at the compliance point, a proposed concentration limit under subdivision a or b of subsection 1 of section 33-24-05-51, or a notice of intent to seek an alternate concentration limit under subsection 2 of section 33-24-05-51.

e. Within one hundred eighty days, submit to the department:

(1) All data necessary to justify an alternate concentration limit sought under subsection 2 of section 33-24-05-51; and

(2) An engineering feasibility plan for a corrective action program necessary to meet the requirements of section 33-24-05-57, unless:

(a) All hazardous constituents identified under subdivision b of subsection 7 are listed in table 1 of section 33-24-05-51 and their concentrations do not exceed the respective values given in that table; or

(b) The owner or operator has sought an alternate concentration limit under subsection 2 of section 33-24-05-51 for every hazardous constituent identified under subdivision b of subsection 7.

f. If the owner or operator determines, pursuant to subsection 6, that there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to subsection 1 at any monitoring well at the compliance point, the owner or operator may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the ground water. The owner or operator may make a demonstration under this section in addition to, or in lieu of, submitting a permit modification application under subdivision d of subsection 7; however, the owner or operator is not relieved of the requirement to submit a permit modification application within the time specified in subdivision d of subsection 7 unless the demonstration made under this subdivision successfully shows that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. In making a demonstration under this subdivision, the owner or operator must:

(1) Notify the department in writing within seven days of determining statistically significant evidence of contamination at the compliance point that the owner or operator intends to make a

demonstration under this subdivision;

(2) Within ninety days, submit a report to the department which demonstrates that a source other than a regulated unit caused the contamination or that the contamination resulted from error in sampling, analysis, or evaluation;

(3) Within ninety days, submit to the department an application for a permit modification to make any appropriate changes to the detection monitoring program facility; and

(4) Continue to monitor in accordance with the detection monitoring program established under this section.

8. If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of this section, the owner or operator must, within ninety days, submit an application for a permit modification to make any appropriate changes to the program.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-56. Compliance monitoring program. An owner or operator who is required to establish a compliance monitoring program under this chapter shall, at a minimum, discharge the following responsibilities:

1. The owner or operator shall monitor the ground water to determine whether regulated units are in compliance with the ground water protection standard under section 33-24-05-49. The department will specify the ground water protection standard in the facility permit, including:

   a. A list of the hazardous constituents identified under section 33-24-05-50.

   b. Concentration limits under section 33-24-05-51 for each of those hazardous constituents.

   c. The compliance point under section 33-24-05-52.

   d. The compliance period under section 33-24-05-53.

2. The owner or operator shall install a ground water monitoring system at the compliance point as specified under section 33-24-05-52. The ground water monitoring system must comply with subdivision b of subsection 1, and subsections 2 and 3, of section 33-24-05-54.

3. The department will specify the sampling procedures and statistical methods appropriate for the constituents and the facility, consistent with subsections

7 and 8 of section 33-24-05-54.

a. The owner or operator must conduct a sampling program for each chemical parameter or hazardous constituent in accordance with subsection 7 of section 33-24-05-54.

b. The owner or operator must record ground water analytical data as measured and in form necessary for the determination of statistical significance under subsection 8 of section 33-24-05-54 for the compliance period of the facility.

4. The owner or operator must determine whether there is statistically significant evidence of increased contamination for any chemical parameter or hazardous constituent specified in the permit, pursuant to subsection 1, at a frequency specified under subsection 6.

a. In determining whether statistically significant evidence of increased contamination exists, the owner or operator must use the methods specified in the permit under subsection 8 of section 33-24-05-54. The methods must compare data collected at the compliance points to a concentration limit developed in accordance with section 33-24-05-51.

b. The owner or operator must determine whether there is statistically significant evidence of increased contamination at each monitoring well at the compliance point within a reasonable time period after completion of sampling. The department will specify that time period and the facility permit, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of ground water samples.

5. The owner or operator shall determine the ground water flow rate and direction in the uppermost aquifer at least annually.

6. The department will specify the frequencies for collecting samples and conducting statistical tests to determine statistically significant evidence of increased contamination in accordance with subsection 7 of section 33-24-05-54. A sequence of at least four samples from each well, background and compliance wells, must be collected at least semiannually during the compliance period of the facility.

7. The owner or operator must analyze samples from all monitoring wells at the compliance point for all constituents contained in appendix IX at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer and, if so, at what concentration, pursuant to the procedures in subsection 6 of section 33-24-05-55. If the owner or operator finds appendix IX constituents in the ground water that are not already identified in the permit as monitoring constituents, the owner or operator may resample within one month and repeat the appendix IX analysis. If the second analysis confirms the presence of new constituents, the owner or operator must report the concentration of these additional constituents to the department within seven days after the completion of the second analysis and add them to

the monitoring list. If the owner or operator chooses not to resample, then the owner or operator must report the concentrations of these additional constituents to the department within seven days after completion of the initial analysis and add them to the monitoring list.

8. If the owner or operator determines pursuant to subsection 4 that any concentration limits under section 33-24-05-51 are being exceeded at any monitoring well at the point of compliance, the owner or operator must:

   a. Notify the department of this finding in writing within seven days. The notification must indicate what concentration limits have been exceeded.

   b. Submit to the department an application for a permit modification to establish a corrective action program meeting the requirements of section 33-24-05-57 within one hundred eighty days, or within ninety days if an engineering feasibility study has been previously submitted to the department under subdivision e of subsection 8 of section 33-24-05-55. The application must, at a minimum, include the following information:

      (1) A detailed description of corrective actions that will achieve compliance within the ground water protection standard specified in the permit under subsection 1.

      (2) A plan for a ground water monitoring program that will demonstrate the effectiveness of the corrective action. Such a ground water monitoring program may be based on a compliance monitoring program developed to meet the requirements of this section.

9. If the owner or operator determines, pursuant to subsection 4, that the ground water concentration limits under this section are being exceeded at any monitoring well at the point of compliance, the owner or operator may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the ground water. In making a demonstration under this section, the owner or operator must:

   a. Notify the department in writing within seven days that the owner or operator intends to make a demonstration under this subsection.

   b. Within ninety days, submit a report to the department which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation.

   c. Within ninety days, submit to the department an application for a permit modification to make any appropriate changes to the compliance monitoring program at the facility.

   d. Continue to monitor in accordance with the compliance monitoring program established under this section.

10. If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of this section, the owner or operator shall, within ninety days, submit an application for a permit modification to make any appropriate changes to the program.

11. The owner or operator shall assure that monitoring and corrective action measures necessary to achieve compliance with the ground water protection standard under section 33-24-05-49 are taken during the term of this permit.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-57. Corrective action program. An owner or operator required to establish a corrective action program shall, at a minimum, discharge the following responsibilities:

1. The owner or operator shall take corrective action to ensure that regulated units are in compliance with the ground water protection standard under section 33-24-05-49. The department will specify the ground water protection standard in the facility permit including:

   a. A list of the hazardous constituents identified under section 33-24-05-50.

   b. Concentration limits under section 33-24-05-51 for each of those hazardous constituents.

   c. The compliance point under section 33-24-05-52.

   d. The compliance period under section 33-24-05-53.

2. The owner or operator shall implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. The permit will specify the specific measures that will be taken.

3. The owner or operator shall begin corrective action within a reasonable time period after the ground water protection standard is exceeded. The department will specify that time period in the facility permit. If a facility permit includes a corrective action program in addition to a compliance monitoring program, the permit will specify when the corrective action will begin and such a requirement will operate in lieu of subdivision b of subsection 9 of section 33-24-05-56.

4. In conjunction with a corrective action program, the owner or operator shall establish and implement a ground water monitoring program to demonstrate the effectiveness of the corrective action program. Such a monitoring program may

be based on the requirements for a compliance monitoring program under section 33-24-05-56 and must be as effective as that program in determining compliance with the ground water protection standard under section 33-24-05-49 and in determining the success of a corrective action program under subsection 5 where appropriate.

5. In addition to the other requirements of this section, the owner or operator shall conduct a corrective action program to remove or treat in place any hazardous constituents under section 33-24-05-50 that exceed concentration limits under section 33-24-05-51 in ground water:

   a. Between the compliance point under section 33-24-05-52 and the downgradient property boundary; and

   b. Beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the department that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner or operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where offsite access is denied. Onsite measures to address such releases will be determined on a case-by-case basis.

   c. Corrective action measures under this paragraph must be initiated and completed within a reasonable period of time considering the extent of contamination.

   d. Corrective action measures under this subsection may be terminated once the concentration of hazardous constituents under section 33-24-05-50 is reduced to levels below their respective concentration limits under section 33-24-05-51.

6. The owner or operator shall continue corrective action measures during the compliance period to the extent necessary to ensure that the ground water protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period the owner or operator shall continue that corrective action for as long as necessary to achieve compliance with the ground water protection standard. The owner or operator may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if the owner or operator can demonstrate, based on data from the ground water monitoring program under subsection 4 that the ground water protection standard of section 33-24-05-49 has not been exceeded for a period of three consecutive years.

7. The owner or operator shall report in writing to the department on the effectiveness of the corrective action program. The owner or operator shall submit these reports semiannually.

8. If the owner or operator determines that the corrective action program no

longer satisfies the requirements of this section, the owner or operator shall, within ninety days, submit an application for a permit modification to make any appropriate changes to the program.

History: Effective January 1, 1984; amended effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-58. Corrective action for solid waste management units.

1. The owner or operator of a facility seeking a permit for the treatment, storage, or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit.

2. Corrective action will be specified in the permit in accordance with this section and sections 33-24-05-550 through 33-24-05-559. The permit will contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action.

3. The owner or operator must implement corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the department that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such actions. The owner or operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where offsite access is denied. Onsite measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided.

History: Effective October 1, 1986; amended effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-59. Applicability of closure and postclosure requirements. Except as section 33-24-05-01 provides otherwise:

1. Sections 33-24-05-60 through 33-24-05-64 (which concern closure) apply to the owners and operators of all hazardous waste management facilities;

2. Sections 33-24-05-65 through 33-24-05-69 (which concern postclosure care) apply to the owners and operators of:

   a. All hazardous waste disposal facilities;

   b. Waste piles and surface impoundments from which the owner or operator

intends to remove the wastes at closure to the extent that these sections are made applicable to such facilities in section 33-24-05-119 or 33-24-05-135;

c. Tank systems that are required under section 33-24-05-110 to meet the requirements for landfills; and

d. Containment buildings that are required under section 33-24-05-477 to meet the requirement for landfills.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-60. Closure performance standard. The owner or operator shall close the owner's or operator's facility in a manner that:

1. Minimizes the need for further maintenance;

2. Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and

3. Complies with the closure requirements of section 33-24-05-59 through 33-24-05-73, including the requirements of sections 33-24-05-97, 33-24-05-110, 33-24-05-~~119~~ 122, 33-24-05-135, 33-24-05-151, 33-24-05-167, 33-24-05-180, 33-24-05-301 through 33-24-05-303, and section 33-24-05-477.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-61. Closure plan - amendment of plan.

1. **Written plan.**

a. The owner or operator of a hazardous waste management facility must have a written closure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous waste at partial or final closure are required by paragraph 1 of subdivision a of subsection 3 of section 33-24-05-~~119~~ 122 and paragraph 1 of subdivision a of subsection 3 of section 33-24-05-135 to have contingent closure plans. The plan must be submitted with the permit application, in accordance with subdivision m of subsection 2 of section 33-24-06-17, and approved by the department as part of the permit issuance procedure under chapter 33-24-07. In

accordance with section 33-24-06-05, the approved closure plan will become a condition of any hazardous waste permit.

b. The department's approval of the plan must ensure that the approved closure plan is consistent with sections 33-24-05-60 through 33-24-05-64 and the applicable requirements of sections 33-24-05-47 through 33-24-05-58, 33-24-05-97, 33-24-05-110, 33-24-05-~~119~~ 122, 33-24-05-135, 33-24-05-151, 33-24-05-167, 33-24-05-180, 33-24-05-301, and 33-24-05-477. Until final closure is completed and certified in accordance with section 33-24-05-64, a copy of the approved plan and all approved revisions must be furnished to the department upon request, including requests by mail.

2. **Content of plan.**

The plan must identify steps necessary to perform partial or final, or both, closure of the facility at any point during its active life. The closure plan must include, at least:

a. A description of how each hazardous waste management unit at the facility will be closed in accordance with section 33-24-05-60;

b. A description of how final closure of the facility will be conducted in accordance with section 33-24-05-60. The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility;

c. An estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all hazardous wastes, and identification of the types of the offsite hazardous waste management units to be used, if applicable;

d. A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standards;

e. A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closures satisfy the closure performance standards, including, but not limited to, ground water monitoring, leachate collection, and run-on and runoff control;

f. A schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in

the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included.);

g. For facilities that use trust funds or establish financial assurance under section 33-24-05-77 and that are expected to close prior to the expiration of the permit, an estimate of the expected year of final closure.

h. A closure cost estimate.

3. **Amendment of plan.**

The owner or operator must submit a written notification of, or request for, a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the applicable procedures in chapters 33-24-06 and 33-24-07. The written notification or request must include a copy of the amended closure plan for review or approval by the department.

a. The owner or operator may submit a written notification or request to the department for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.

b. The owner or operator must submit a written notification of, or request for, a permit modification to authorize a change in the approved closure plan when:

(1) Changes in operating plans or facility design affect the closure plan;

(2) There is a change in the expected year of closure, if applicable; or

(3) In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan.

c. The owner or operator shall submit a written request for a permit modification including a copy of the amended closure plan for approval at least sixty days prior to the proposed change in facility design or operation, or no later than sixty days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator shall request a permit modification no later than thirty days after the unexpected event. An owner or operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to prepare a contingent closure plan under paragraph 1 of subdivision a of subsection 3 of section 33-24-05-~~119~~ 122 or paragraph 1 of subdivision a of subsection 3 of section 33-24-05-135 shall submit an amended closure plan to the department no later than

sixty days from the date that the owner or operator or department determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of section 33-24-05-180, or no later than thirty days from that date if the determination is made during partial or final closure. The department will approve, disapprove, or modify this amended plan in accordance with the procedures in chapters 33-24-06 and 33-24-07. In accordance with section 33-24-06-05, the approved closure plan will become a condition of the hazardous waste permit issued.

d. The department may request modifications to the plan under the conditions described in subdivision b of subsection 3. The owner or operator shall submit the modified plan within sixty days of the department's request, or within thirty days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the department will be approved in accordance with procedures in chapters 33-24-06 and 33-24-07.

4. **Notification of partial closure and final closure.**

a. The owner or operator shall notify the department in writing at least sixty days prior to the date on which the owner or operator expects to begin closure of a surface impoundment, waste pile, land treatment or landfill unit, <u>boiler or industrial furnace,</u> or final closure of a facility with such a unit. The owner or operator shall notify the department in writing at least forty-five days prior to the date on which the owner or operator expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed.

b. The date when the owner or operator "expects to begin closure" must be either no later than thirty days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous waste, no later than one year after the date on which the unit received the most recent volume of hazardous waste. If the owner or operator of a hazardous waste management unit can demonstrate to the department that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and the owner or operator has taken and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the department may approve an extension to this one-year limit.

c. If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or final order under North Dakota Century Code section 23-20.3-08, to cease receiving hazardous waste or to close, then the requirements of this section do not apply. However, the owner or operator shall close the facility in accordance with the deadlines established in section 33-24-05-62.

5. **Removal of wastes and decontamination or dismantling of equipment.**

Nothing in this section precludes the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-62. Closure - time allowed for closure.

1. Within ninety days after receiving the final volume of hazardous wastes at a hazardous waste management unit or facility, the owner or operator shall treat, remove from the unit or facility, or dispose of onsite, all hazardous wastes in accordance with the approved closure plan. The department may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

   a. One or both of the following paragraphs apply:

   (1) The activities required to comply with this section will, of necessity, take longer than ninety days to complete; or

   (2) All of the following subparagraphs apply:

      (a) The hazardous waste management unit or facility has the capacity to receive additional hazardous waste;

      (b) There is a reasonable likelihood that the owner or operator or another person will recommence operation of the hazardous waste management unit or the facility within one year;

      (c) Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

      (d) The owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.

2. The owner or operator shall complete partial and final closure activities in accordance with the approved closure plan and within one hundred eighty days after receiving the final volume of hazardous wastes at the hazardous waste management unit or facility. The department may approve an extension to the closure period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates

that:

a. One or both of the following paragraphs apply:

(1) The partial or final closure activities will, of necessity, take longer than one hundred eighty days to complete; or

(2) All the following subparagraphs apply:

(a) The hazardous waste management unit or facility has the capacity to receive additional hazardous waste;

(b) There is reasonable likelihood that the owner or operator or another person will recommence operation of the hazardous waste management unit or the facility within one year;

(c) Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(d) The owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility including compliance with all applicable permit requirements.

3. The demonstrations referred to in subsections 1 and 2 of section 33-24-05-62 must be made as follows: The demonstrations in subsection 1 must be made at least thirty days prior to expiration of the ninety-day period in subsection 1; and the demonstration in subsection 2 must be made at least thirty days prior to the expiration of the one-hundred-eighty-day period in subsection 2.

History: Effective January 1, 1984; amended December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-63. Disposal or decontamination of equipment, structures, and soils. During the partial and final closure periods, all contaminated equipment, structures, and soils must be properly disposed of or decontaminated unless otherwise specified in sections 33-24-05-110, 33-24-05-~~119~~ 122, 33-24-05-135, 33-24-05-167, or 33-24-05-180. By removing any hazardous wastes or hazardous constituents during partial and final closure, the owner or operator may become a generator of hazardous waste and shall handle that waste in accordance with all applicable requirements of chapter 33-24-03.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-64. Certification of closure. Within sixty days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit, and within sixty days of the completion of final closure, the owner or operator shall submit to the department, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the department upon request until the department releases the owner or operator from the financial assurance requirements for closure under subsection 9 of section 33-24-05-77.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-65. Survey plat. No later than the submission of the certification of closure of each hazardous waste disposal unit, the owner or operator shall submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the department, a survey plot indicating the location and dimensions of landfills cells, or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor, the plat filed with a local zoning authority or the authority with jurisdiction over local land use, must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the hazardous waste disposal unit in accordance with the applicable regulations under section 33-24-05-59 through 33-24-05-69.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-66. Postclosure care and use of property.

1. Postclosure care requirements.

   a. Postclosure care for each hazardous waste management unit subject to the requirements of sections 33-24-05-66 through 33-24-05-69 must begin after completion of closure of the unit and continue for thirty years after that date and must consist of at least the following:

      (1) Monitoring and reporting in accordance with the requirements of sections 33-24-05-47 through 33-24-05-58, sections 33-24-05-115 through 33-24-05-186, and sections 33-24-05-300 through 33-24-05-303; and

      (2) Maintenance and monitoring of waste containment systems in accordance with the requirements of sections 33-24-05-47 through 33-

24-05-58, sections 33-24-05-115 through 33-24-05-186, and sections 33-24-05-300 through 33-24-05-303.

b. Anytime preceding partial closure of a hazardous waste management unit subject to postclosure care requirements or final closure, or anytime during the postclosure period for a particular unit, the department may, in accordance with the permit modification procedures in chapters 33-24-06 and 33-24-07:

(1) Shorten the postclosure care period applicable to the hazardous waste management unit, or facility, if all disposal units have been closed, if the owner or operator finds that the reduced period is sufficient to protect human health and the environment (~~e.g.,~~ for example, leachate or ground water monitoring results, characteristics of the hazardous waste, application of advanced technology or alternative disposal, treatment, or reuse techniques indicate that the hazardous waste management unit or facility is secure); or

(2) Extend the postclosure care period applicable to the hazardous waste management unit or facility if the owner or operator finds that the extended period is necessary to protect human health or the environment (~~e.g.,~~ for example, leachate or ground water monitoring results indicate a potential for migration of hazardous waste at levels which may be harmful to human health or the environment).

2. The department may require, at partial and final closure, continuation of any of the security requirements of section 33-24-05-05 during part or all of the postclosure period when:

a. Hazardous wastes may remain exposed after completion of partial or final closure; or

b. Access by the public or domestic livestock may pose a hazard to human health.

3. Postclosure use of property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the facility's monitoring systems, unless the department finds that the disturbance:

a. Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or

b. Is necessary to reduce a threat to human health or the environment.

4. All postclosure care activities must be in accordance with the provisions of the approved postclosure plan as specified in section 33-24-05-67.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1,

1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-67. Postclosure plan - Amendment of plan.

1. Written plan. The owner or operator of a hazardous waste disposal unit must have a written postclosure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous wastes at partial or final closure are required by paragraph (2) of subdivision a of subsection 3 of section 33-24-05-~~119~~ 122 and paragraph (2) of subdivision a of subsection 3 of section 33-24-05-135 to have contingent postclosure plans. Owners or operators of surface impoundments and waste piles not otherwise required to prepare contingent postclosure plans under paragraph (2) of subdivision a of subsection 3 of section 33-24-05-~~119~~ 122 and paragraph (2) of subdivision a of subsection 3 of section 33-24-05-135 must submit a postclosure plan to the department within ninety days from the date that the owner or operator or department determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of sections 33-24-05-66 through 33-24-05-69. The plan must be submitted with the permit application in accordance with section 33-24-06-17 of this article, and approved by the department as part of the permit issuance procedure under chapter 33-24-07 of this article. In accordance with section 33-24-06-05 of this article, the approved postclosure plan will become a condition of any hazardous waste permit issued.

2. For each hazardous waste management unit subject to the requirements of this section, the postclosure plan must identify the activities that will be carried on after closure of each disposal unit and the frequency of these activities, and include at least:

   a. A description of the planned monitoring activities and frequencies at which they will be performed to comply with sections 33-24-05-47 through 33-24-05-58, sections 33-24-05-115 through 33-24-05-186 and sections 33-24-05-300 through 33-24-05-303 during the postclosure care period;

   b. A description of the planned maintenance activities, and frequencies at which they will be performed to ensure:

      (1) The integrity of the cap and final cover or other containment systems in accordance with the requirements of sections 33-24-05-47 through 33-24-05-58, sections 33-24-05-115 through 33-24-05-186, and sections 33-24-05-300 through 33-24-05-303;

      (2) The function of the monitoring equipment in accordance with the requirements of sections 33-24-05-47 through 33-24-05-58, sections 33-24-05-115 through 33-24-05-186, and sections 33-24-05-300 through 33-24-05-303; and

   c. The name, address, and phone number of the persons or office to contact

about the hazardous waste disposal unit or facility during the postclosure care period.

3. Until final closure of the facility, a copy of the approved postclosure plan must be furnished to the department upon request, including request by mail. After final closure has been certified, the person or office specified in subdivision c of subsection 2 of section 33-24-05-67 shall keep the approved postclosure plan during the remainder of the postclosure period.

4. The owner or operator must submit a written notification of, or request for, a permit modification to authorize a change in the approved postclosure plan in accordance with the applicable requirements in chapters 33-24-06 and 33-24-07. The written notification or request must include a copy of the amended postclosure plan for review or approval by the department.

   a. The owner or operator may submit a written notification or request to the department for a permit modification to amend the postclosure plan at any time during the active life of the facility or during the postclosure care period.

   b. The owner or operator must submit a written notification of, or request for, a permit modification to authorize a change in the approved postclosure plan when:

      (1) Changes in operating plans or facility design affect the approved postclosure plan;

      (2) There is a change in the expected year of final closure, if applicable; or

      (3) Events which occur during the active life of the facility, including partial and final closures, affect the approved postclosure plan.

   c. The owner or operator shall submit a written request for a permit modification at least sixty days prior to the proposed change in facility design or operation, or no later than sixty days after an unexpected event has occurred which has affected the postclosure plan. An owner or operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to submit a contingent postclosure plan under paragraph 2 of subdivision a of subsection 3 of section 33-24-05-~~119~~ 122 and paragraph 2 of subdivision a of subsection 3 of section 33-24-05-135 shall submit a postclosure plan to the department no later than ninety days after the date that the owner or operator or department determine that the hazardous waste management unit must be closed as a landfill, subject to the requirements of section 33-24-05-180. The department will approve, disapprove, or modify this plan in accordance with the procedures in chapters 33-24-06 and 33-24-07. In accordance with section 33-24-06-05, the approved postclosure plan will become a permit condition.

   d. The department may request modifications to the plan under the conditions

described in subdivision b of subsection 4 of section 33-24-05-67. The owner or operator must submit the modified plan no later than sixty days after the department's request, or no later than ninety days if the unit is a surface impoundment or waste pile not previously required to prepare a contingent postclosure plan. Any modifications requested by the department will be approved, disapproved, or modified in accordance with the procedures in chapters 33-24-06 and 33-24-07.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-68. Postclosure notices.

1. No later than sixty days after certification of closure of each hazardous waste disposal unit, the owner or operator shall submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the department a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous waste disposed of before January 12, 1981, the owner or operator shall identify the type, location, and quantity of the hazardous wastes to the best of his knowledge and in accordance with any records he has kept.

2. Within sixty days of certification of closure of the first hazardous waste disposal unit and within sixty days of certification of closure of the last hazardous waste disposal unit, the owner or operator shall:

   a. Record, in accordance with state law, a notation on the deed to the facility property - or on some other instrument which is normally examined during title search - that will in perpetuity notify any potential purchaser of the property that:

      (1) The land has been used to manage hazardous waste;

      (2) Use of the land is restricted under sections 33-24-05-59 through 33-24-05-73; and

      (3) The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by section 33-24-05-65 and subsection 1 of section 33-24-05-68 have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the department; and

   b. Submit a certification, signed by the owner or operator, that the owner or operator has recorded the notation specified in subdivision a of subsection 2, including a copy of the document in which the notation has been placed, to the department.

3. If the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, he shall request a modification to the postclosure permit in accordance with the applicable requirements in chapters 33-24-06 and 33-24-07. The owner or operator shall demonstrate that the removal of the hazardous waste will satisfy the criteria of subsection 3 of section 33-24-05-66. By removing hazardous waste, the owner or operator may become a generator of hazardous waste and shall manage it in accordance with all applicable requirements of this article. If the owner or operator is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the department approve either:

   a. The removal of the notation on the deed to the facility property or other instrument normally examined during title search; or

   b. The addition of a notation to the deed or instrument indicating the removal of the hazardous waste.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-69. Certification of completion of postclosure care. No later than sixty days after completion of the established postclosure care period for each hazardous waste disposal unit, the owner or operator shall submit to the department, by registered mail, a certification that the postclosure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved postclosure plan. The certification must be signed by the owner or operator and an independent registered professional engineer. Documentation supporting the independent registered professional engineer certification must be furnished to the department upon request until the department releases the owner or operator from the financial assurance requirements for postclosure care under subsection 9 of section 33-24-05-77.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-70. [Reserved]

33-24-05-71. [Reserved]

33-24-05-72. [Reserved]

33-24-05-73. [Reserved]

33-24-05-74. Applicability of financial requirements.

1. The requirements of sections 33-24-05-76, 33-24-05-77, and 33-24-05-79 through 33-24-05-81 apply to owners and operators of all hazardous waste facilities, except as provided otherwise in this section or in section 33-24-05-01.

2. The requirements of sections 33-24-05-76 and 33-24-05-77 apply only to owners and operators of:

   a. Disposal facilities;

   b. Piles, and surface impoundments from which the owner or operator intends to remove the wastes at closure, to the extent that these sections are made applicable to such facilities in sections 33-24-05-~~119~~ 122 and 33-24-05-135;

   c. Tank systems that are required under section 33-24-05-110 to meet the requirements for landfills; and

   d. Containment buildings that are required under section 33-24-05-477 to meet the requirements for landfills.

3. Federal agencies and agencies of the government of the state of North Dakota are exempt from the financial requirements.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-75. Definitions of terms used in this chapter.

1. "Closure plan" means the plan for closure prepared in accordance with the requirements of section 33-24-05-61.

2. "Current closure cost estimate" means the most recent of the closure cost estimates prepared in accordance with subsection 1, 2, and 3, of section 33-24-05-76.

3. "Current postclosure cost estimate" means the most recent of the postclosure cost estimates prepared in accordance with subsections 1, 2, and 3 of section 33-24-05-76.

4. "Parent corporation" means a corporation which directly owns at least fifty percent of the voting stock of the corporation which is the facility owner or operator; the latter corporation is deemed a "subsidiary" of the parent corporation.

5. "Postclosure plan" means the plan for postclosure care prepared in accordance with the requirements of sections 33-24-05-65 through 33-24-05-68.

6. The following terms are used in the specifications for the financial tests for

closure, postclosure care and liability coverage. The definitions are intended to assist in the understanding of this chapter and are not intended to limit the meanings of terms in a way that conflicts with generally accepted accounting practices.

"Assets" means all existing and all probable future economic benefits obtained or controlled by a particular entity.

"Current assets" means cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

"Current liability" means obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities.

"Current plugging and abandonment cost estimate" means the most recent of the estimates prepared in accordance with 40 CFR part 144.62(a), (b), and (c).

"Independently audited" refers to an audit performed by an independent certified public accountant in accordance with generally accepted auditing standards.

"Liabilities" means probable future sacrifices of economic benefits arising from present obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.

"Net working capital" means current assets minus current liabilities.

"Net worth" means total assets minus total liabilities and is equivalent to owners equity.

"Tangible net worth" means the tangible assets that remain after deducting liabilities; such assets would not include intangibles such as goodwill and rights to patents or royalties.

7. In the liability insurance requirements, the terms "bodily injury" and "property damage" have the meanings given these terms by applicable state law. However, these terms do not include those liabilities which, consistent with standard industry practices, are excluded from coverage and liability policies for bodily injury and property damage. The department intends the meanings of other terms used in the liability insurance requirements to be consistent with their common meanings within the insurance industry. The definitions given below of several of the terms are intended to assist in the understanding of these regulations and are not intended to limit their meanings in any way that conflicts with general insurance industry usage.

"Accidental occurrence" means an accident, including continuous or repeated exposure to conditions, which results in bodily injury or property damage, neither expected nor intended from the standpoint of the insured.

"Legal defense costs" means any expenses that an insurer incurs in defending against claims of third parties brought under the terms and conditions of an insurance policy.

"Nonsudden accidental occurrence" means an occurrence which takes place over time and involves continuous or repeated exposure.

"Sudden accidental occurrence" means an occurrence which is not continuous or repeated in nature.

8. "Substantial business relationship" means the extent of a business relationship necessary under applicable state law to make a guarantee contract issued incident to that relationship valid and enforceable. A "substantial business relationship" must arise from a pattern of recent or ongoing business transactions, in addition to the guarantee itself, such that a currently existing business relationship between the guarantor and the owner or operator is demonstrated to the satisfaction of the department.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-76. Cost estimates for closure and postclosure care.

1. The cost estimates for closure.

   a. The owner or operator shall have a detailed written estimate, in current dollars, of the cost of closing the facility in accordance with the requirements in sections 33-24-05-60 through 33-24-05-64 and applicable closure requirements in sections 33-24-05-97, 33-24-05-110, 33-24-05-~~119~~ 122, 33-24-05-135, 33-24-05-151, 33-24-05-167, 33-24-05-180, sections 33-24-05-301 through 33-24-05-303, and section 33-24-05-477.

      (1) The estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see subsection 2 of section 33-24-05-61); and

      (2) The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility. A third party is a party who is neither a parent nor a subsidiary of the owner or operator. (See definition of parent corporation in subsection 4 of section 33-24-05-75.) The owner or operator may use costs for onsite disposal if the owner or operator can demonstrate that onsite disposal capacity will exist at all times over the life of the facility.

      (3) The closure cost estimate may not incorporate any salvage value that may be realized with the sale of hazardous wastes, facility

structures or equipment, land, or other assets associated with the facility at the time of partial or final closure.

(4) The owner or operator may not incorporate a zero cost for hazardous wastes that might have economic value.

b. During the active life of the facility, the owner or operator shall adjust the closure cost estimate for inflation within sixty days prior to the anniversary date of the establishment of the financial instruments used to comply with section 33-24-05-77. For owners and operators using the financial test or corporate guarantee, the closure cost estimate must be updated for inflation within thirty days after the close of the firm's fiscal year and before submission of updated information to the department as specified in subdivision c of subsection 6 of section 33-24-05-77. The adjustment may be made by recalculating the maximum costs of closure in current dollars, or by using an inflation factor derived from the most recent implicit price deflator for gross national product published by the United States department of commerce in its survey of current business as specified in paragraphs 1 and 2. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year.

(1) The first adjustment is made by multiplying the closure cost estimates by the inflation factor. The result is the adjusted closure cost estimate.

(2) Subsequent adjustments are made by multiplying the latest adjusted closure cost estimates by the latest inflation factor.

c. During the active life of the facility, the owner or operator shall revise the closure cost estimate no later than thirty days after the department has approved the request to modify the closure plan, if the change in the closure plan increases the cost of closure. The revised closure cost estimate must be adjusted for inflation as specified in subdivision b.

d. The owner or operator shall keep the following at the facility during the operating life of the facility: The latest closure cost estimate prepared in accordance with subdivision a and c and, when this estimate has been adjusted in accordance with subdivision b, the latest adjusted closure cost estimate.

2. Cost estimate for postclosure care.

a. The owner or operator of a disposal surface impoundment, disposal miscellaneous unit, land treatment, or landfill unit, or a surface impoundment or waste pile required under sections 33-24-05-~~119~~ 122 and 33-24-05-135 to prepare a contingent closure and postclosure plan, shall have a detailed written estimate in current dollars, of the annual cost of postclosure monitoring and maintenance of the facility in accordance with the applicable postclosure rules in sections 33-24-05-65 through 33-

24-05-69, sections 33-24-05-~~119~~ 122, 33-24-05-135, 33-24-05-167, 33-24-05-180, and 33-24-05-303.

(1) The postclosure cost estimate must be based on the cost to the owner or operator of hiring a third party to conduct postclosure care activities. A third party is a party who is neither a parent or subsidiary of the owner or operator. (See definition of parent corporation in subsection 4 of section 33-24-05-75.)

(2) The postclosure cost estimate is calculated by multiplying the annual postclosure cost estimate by the number of years of postclosure care required under section 33-24-05-66.

b. During the active life of the facility, the owner or operator shall address the postclosure cost estimate for inflation within sixty days prior to the anniversary date of the establishment of the financial instruments used to comply with section 33-24-05-77. For owners or operators using the financial test or corporate guarantee, the postclosure cost estimate must be updated for inflation within thirty days after the close of the firm's fiscal year and before the submission of updated information to the department as specified in subdivision e of subsection 6 of section 33-24-05-77. The adjustment may be made by recalculating the postclosure cost estimate in current dollars or by using an inflation factor derived from the most recent implicit price deflator for gross national product published by the United States department of commerce in a survey of current business as specified in subdivisions a and b of subsection 2 of section 33-24-05-77. The inflation factor is the result of dividing the latest annual published deflator by the deflator for the previous year.

(1) The first adjustment is made by multiplying the postclosure cost estimate by the inflation factor. The result is the adjusted postclosure cost estimate.

(2) Subsequent adjustments are made by multiplying the latest adjusted postclosure cost estimate by the latest inflation factor.

c. During the active life of the facility, the owner or operator shall revise the postclosure cost estimate within thirty days after the department has approved a request to modify the postclosure plan, if the change in the postclosure plan increases the cost of postclosure care. The revised postclosure cost estimate must be adjusted for inflation as specified in subdivision b.

d. The owner or operator shall keep the following at the facility during the operating life of the facility: The latest postclosure cost estimate prepared in accordance with subdivisions a and c of subsection 2 and, when this estimate has been adjusted in accordance with subdivision d of subsection 2, the latest adjusted postclosure cost estimate.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-77. Financial assurance for closure and postclosure care. In accordance with section 33-24-05-74, an owner or operator of each facility shall establish financial assurance for closure and postclosure of the facility. The owner or operator of a hazardous waste management unit subject to the postclosure requirements of section 33-24-05-76 shall establish financial assurance for postclosure care in accordance with the approved postclosure plan for the facility sixty days prior to the initial receipt of hazardous waste or the effective date of the regulations, which ever is later. The owner or operator shall choose from the options as specified in subsections 1 through 6.

1. **Closure and postclosure trust fund.**

   a. An owner or operator may satisfy the requirements of this section by establishing a closure and postclosure trust fund which conforms to the requirements of this subsection and submitting an originally signed duplicate of the trust agreement to the department. An owner or operator of the new facility shall submit the originally signed duplicate of the trust agreement to the department at least sixty days before the day on which hazardous waste is first received for treatment, storage, or disposal. The trustee must be an entity which has the authority to act as a trustee in this state and whose trust operations are regulated and examined by a federal agency or by the state department of banking and financial institutions.

   b. The wording of the trust agreement must be identical to the wording specified in subdivision a of subsection 1 of section 33-24-05-81 and the trust agreement must be accompanied by a formal certification of acknowledgment (for example see subdivision b of subsection 1 of section 33-24-05-81). Schedule A of the trust agreement must be updated within sixty days after a change in the amount of the current closure and postclosure cost estimate covered by the agreement.

   c. Payments into the trust fund must be made annually by the owner or operator over the term of the initial hazardous waste permit or over the remaining operating life of the facility as estimated in the closure plan, whichever period is shorter; this period is hereinafter referred to as the "pay-in period". The payments into the trust fund must be made as follows:

      (1) For a new facility the first payment must be made before the initial receipt of hazardous waste for treatment, storage, or disposal. A receipt from the trustee for this payment must be submitted by the owner or operator to the department before the initial receipt of hazardous waste. The first payment must be at least equal to the current closure and postclosure cost estimate, except as provided in subsection 7, divided by the number of years in the pay-in period. Subsequent payments must be made no later than thirty days after each anniversary date of the first payment. The amount of

each subsequent payment must be determined by this formula:

$$\text{Next Payment} = \frac{CE-CV}{Y}$$

Where CE is the current closure and postclosure cost estimate, CV is the current value of the trust fund and Y is the number of years remaining in the pay-in period.

(2) If an owner or operator establishes a trust fund as specified in 40 CFR part 265.143(a) or 265.145(a) of the federal hazardous waste regulations and the value of that trust fund is less than the current closure and postclosure cost estimate when a permit is awarded to the facility, the amount of the current closure and postclosure cost estimate still to be paid into the trust fund must be paid in over the pay-in period as defined in subdivision c. Payments must continue to be made no later than thirty days after each anniversary date of the first payment made pursuant to 40 CFR part 265. The amount of each payment must be determined by this formula.

$$\text{Next Payment} = \frac{CE-CV}{Y}$$

Where CE is the current closure and postclosure cost estimate CV is the current value of the trust fund and Y is the number of years remaining in the pay-in period.

d. The owner or operator may accelerate payments into the trust fund or the owner or operator may deposit the full amount of the current closure and postclosure cost estimate at the time the fund is established. However, the owner or operator shall maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in subdivision c.

e. If the owner or operator establishes a closure and postclosure trust fund after having used one or more alternate mechanisms specified in this section (or in 40 part 265.143 or 265.145), the first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments were made according to the specifications of this subsection.

f. After the pay-in period is completed, when the current closure and postclosure cost estimate changes, the owner or operator shall compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the fund is less than the amount of the new estimate the owner or operator within sixty days after the change in the cost estimate shall either deposit an amount into the fund so that its value after the deposit at least equals the amount of the current closure and postclosure cost estimate or obtain other financial assurance as

specified in this section to cover the difference.

g. If the value of the trust fund is greater than the total amount of the current closure and postclosure cost estimate the owner or operator may submit a written request to the department for release of the amount in excess of the current closure and postclosure cost estimate.

h. If an owner or operator substitutes other financial assurance as specified in this section for all or part of the trust fund, the owner or operator may submit a written request to the department for release of the amount in excess of the current closure and postclosure cost estimate covered by the trust fund.

i. Within sixty days after receiving a request from the owner or operator for release of funds as specified in subdivisions g or h, the department will instruct the trustee to release to the owner or operator such funds as the department specifies in writing.

j. During the period of postclosure care the department may approve a release of funds if the owner or operator demonstrates to the department that the value of the trust fund exceeds the remaining cost of the postclosure care.

k. After beginning partial or final closure or during the postclosure care period, or both, an owner or operator or any other person authorized to perform partial or final closure or postclosure activities may request reimbursement for expenditures incurred during these activities by submitting itemized bills to the department. The owner or operator may request reimbursements for partial closure only if sufficient funds are remaining in the trust fund to cover the maximum cost of closing the facility over its remaining operating life. Within sixty days after receiving bills for partial or final closure or postclosure activities, the department will determine whether the expenditures are in accordance with the closure or postclosure plans or otherwise justified and if so, it will instruct the trustee to make reimbursement in such amounts as the department specifies in writing. If the department has reason to believe that the cost of closure will be significantly greater than the value of the trust fund, it may withhold reimbursement of such amounts as it deems prudent until it determines in accordance with subsection 9 that the owner or operator is no longer required to maintain financial assurance for final closure. If the department does not instruct the trustee to make such reimbursements, it will provide the owner or operator with a detailed written statement of reasons.

l. The department will agree to termination of the trust when:

(1) An owner or operator substitutes alternate financial assurance as specified in this section; or

(2) The department releases the owner or operator from the requirements of this section in accordance with subsection 9.

2. **Surety bond guaranteeing payment into a closure and postclosure trust fund.**

a. An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this subsection and submitting the bond to the department. An owner or operator of a new facility must submit the bond to the department at least sixty days before the date on which hazardous waste is first received for treatment, storage, or disposal. The bond must be effective before this initial receipt of hazardous waste. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the United States department of treasury and be authorized to do business within this state. If the surety is using reinsurance, a treasury reinsurance form must be submitted with the bond or within forty-five days thereafter. If cosureties are being used, the original bond must reflect that fact.

b. The wording of the surety bond must be identical to the wording specified in subsection 2 of section 33-24-05-81.

c. The owner or operator who uses a surety bond to satisfy the requirements of this section shall also establish a standby trust fund. Under the terms of the bond, all payments made thereunder will be deposited by the surety directly into the standby trust fund in accordance with instructions from the department. This standby trust fund must meet the requirements specified in subsection 1 except that:

(1) An originally signed duplicate of the trust agreement must be submitted to the department with the surety bond; and

(2) Until the standby trust fund is funded pursuant to the requirements of this section, the following are not required by this chapter:

(a) Payments into the trust fund as specified in subsection 1.

(b) Updating of schedule A of the trust agreement to show current closure and postclosure cost estimates.

(c) Annual evaluations as required by the trust agreement.

(d) Notices of nonpayment as required by the trust agreement.

d. The bond must guarantee that the owner or operator will:

(1) Fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility;

(2) Fund the standby trust fund in an amount equal to the penal sum within fifteen days after an order to begin final closure is issued by the department or a United States district court or other court of competent jurisdiction; or

(3) Provide alternate financial assurance as specified in this section and obtain the department's written approval of the assurance provided within ninety days after receipt by both the owner or operator of a notice of cancellation of the bond from the surety.

e. Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.

f. The penal sum of the bond must be in an amount at least equal to the current closure and postclosure cost estimate, except as provided in subsection 7.

g. When the current closure and postclosure cost estimate increases to an amount greater than the penal sum, the owner or operator within sixty days after the increase must either cause the penal sum to be increased to an amount at least equal to the current closure and postclosure cost estimate and submit evidence of such increase to the department or obtain other financial assurance as specified in this section to cover the increase. When the current closure and postclosure cost estimate decreases, the penal sum may be reduced to the amount of the current closure and postclosure cost estimate following written approval by the department.

h. Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the one hundred twenty days beginning on the date of receipt of cancellation by both the owner or operator and the department as evidenced by the return receipts.

i. The owner or operator may cancel the bond if the department has given prior written consent based on its receipt of evidence of alternate financial assurance as specified in this section.

3. **Surety bond guaranteeing performance of closure and postclosure care.**

a. An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this subsection and submitting the bond to the department. An owner or operator of a new facility must submit the bond to the department at least sixty days before the date on which hazardous waste is first received for treatment, storage, or disposal. The bond must be effective before this initial receipt of hazardous waste. The surety company issuing the bond must, at a minimum, be among those acceptable sureties on federal bonds in Circular 570 of the United States department of treasury and be authorized to do business within the state of North Dakota. If the surety is using reinsurance a treasury reinsurance form must be submitted with the bond or within forty-five days thereafter. If cosureties are being used, the original bond must reflect that fact.

b. The wording of the surety bond must be identical to the wording specified in subsection 3 of section 33-24-05-81.

c. The owner or operator who uses a surety bond to satisfy the requirements of this section shall also establish a standby trust fund. Under the terms of the bond, all payments made thereunder will be deposited by the surety directly into the standby trust fund in accordance with instructions from the department. This standby trust fund must meet the requirements specified in subsection 1 except that:

(1) An originally signed duplicate of the trust agreement must be submitted to the department with the surety bond; and

(2) Until the standby trust fund is funded pursuant to the requirements of this section the following are not required by this chapter:

(a) Payments into the trust fund as specified in subsection 1.

(b) Updating of schedule A of the trust agreement to show current closure and postclosure cost estimates.

(c) Annual valuations as required by the trust agreement.

(d) Notices of nonpayment as required by the trust agreement.

d. The bond must guarantee that the owner or operator will:

(1) Perform postclosure care and final closure in accordance with the postclosure and closure plan and other requirements of the permit for the facility when required to do so; or

(2) Provide alternate financial assurance as specified in this section and obtain the department's written approval of the assurance provided within ninety days after receipt by both the owner or operator and the department of a notice of cancellation of the bond from the surety.

e. Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond. Following a determination by the department that the owner or operator has failed to perform postclosure care or final closure in accordance with the closure and postclosure plan and other permit requirements when required to do so, under the terms of the bond the surety will perform the postclosure care and final closure as guaranteed by the bond or will deposit the amount of the penal sum into the standby trust fund.

f. The penal sum of the bond must be in an amount at least equal to the current closure and postclosure cost estimate, or both.

g. When the current closure and postclosure cost estimate, or both,

increases to an amount greater than the penal sum, the owner or operator within sixty days after the increase must either cause the penal sum to be increased to an amount at least equal to the current closure and postclosure cost estimate, or both, and submit evidence of such increase to the department or obtain other financial assurance as specified in this section. When the current closure and postclosure cost estimate, or both, decreases the penal sum may be reduced to the amount of the current closure and postclosure cost estimate, or both, following written approval by the department.

h. During the period of postclosure care, the department may approve a decrease in the penal sum if the owner or operator demonstrates to the department that the amount exceeds the remaining cost of postclosure care.

i. Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the one hundred twenty days beginning on the date of receipt of this notice of cancellation by both the owner or operator and the department as evidenced by the return receipts.

j. The owner or operator may cancel the bond if the department has given prior written consent. The department will provide such written consent when:

(1) An owner or operator substitutes alternate financial assurance as specified in this section; or

(2) The department releases the owner or operator from the requirements of this section in accordance with subsection 9.

k. The surety will not be liable for deficiencies in the performance of closure or postclosure care by the owner or operator after the department releases the owner or operator from the requirements of this section in accordance with subsection 9.

4. **Closure and postclosure letter of credit.**

a. An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this subsection and submitting the letter to the department. An owner or operator of a new facility must submit the letter of credit to the department at least sixty days before the date on which hazardous waste is first received for disposal. The letter of credit must be effective before this initial receipt of hazardous waste. The issuing institution must be an entity which has the authority to issue letters of credit in this state and whose letters of credit operations are regulated and examined by a federal agency or by the state department of banking and financial institutions.

b. The wording of the letter of credit must be identical to the wording specified in subsection 4 of section 33-24-05-81.

c. An owner or operator who uses a letter of credit to satisfy the requirements of this section shall also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the department will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the department. This standby trust fund must meet the requirements of the trust fund specified in subsection 1 except that:

(1) An originally signed duplicate of the trust agreement must be submitted to the department with the letter of credit.

(2) Unless the standby trust fund is funded pursuant to the requirements of this section the following are not required by this chapter:

(a) Payments into the trust fund as specified in subsection 1.

(b) Updating of schedule A of the trust agreement to show current or postclosure, or both, cost estimates.

(c) Annual valuations as required by the trust agreement; and

(d) Notices of nonpayment as required by the trust agreement.

d. The letter of credit must be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution and date and providing the following information: The identification number, name and address of the facility and the amount of funds assured for closure and postclosure care of the facility by the letter of credit.

e. The letter of credit must be irrevocable and issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless at least one hundred twenty days before the current expiration date, the issuing institution notifies both the owner or operator and the department by certified mail of a decision not to extend the expiration date. Under the terms of the letter of credit, the one hundred twenty days will begin on the date when both the owner or operator and the department have received notice as evidenced by the return receipts.

f. The letter of credit must be issued in an amount at least equal to the current closure or postclosure, or both, cost estimate, except as provided in subsection 7.

g. When the current closure or postclosure or both, cost estimate, increases to an amount greater than the amount of the letter of credit during the operating life of the facility, the owner or operator within sixty days after the increase shall either cause the amount of the letter of credit to be increased so that it at least equals the current closure or

postclosure, or both, cost estimate, and submit evidence of such increase to the department, or obtain other financial assurance as specified in this section to cover the increase. When the current closure or postclosure, or both, cost estimate decreases, the amount of the credit may be reduced to the amount of the current estimate following written approval by the department.

h. During the period of postclosure care, the department may approve a decrease in the amount of the letter of credit if the owner or operator demonstrates to the department that the amount exceeds the remaining cost of postclosure care.

i. Following a determination by the department that the owner or operator has failed to perform closure and postclosure care in accordance with the closure or postclosure plan or other permit requirements, the department may draw on the letter of credit.

j. If the owner or operator does not establish alternate financial assurance as specified in this section and obtain written approval of such alternate assurance from the department within ninety days after receipt by both the owner or operator and the department of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the current expiration date, the department will draw on the letter of credit. The department may delay the drawing if the issuing institution grants an extension of the term of the credit. During the last thirty days of any such extension, the department will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this section and obtain written approval of such assurance from the department.

k. The department will return the letter of credit to the issuing institution when:

(1) An owner or operator substitutes alternate financial assurance as specified in this section; or

(2) The department releases the owner or operator from requirements of this section in accordance with subsection 9.

5. **Closure and postclosure insurance.**

a. An owner or operator may satisfy the requirements of this section by obtaining closure and postclosure insurance which conforms to the requirements of this subsection and submitting a certificate of such insurance to the department. An owner or operator of a new facility must submit the certificate of insurance to the department at least sixty days before the date on which hazardous waste is first received for treatment, storage or disposal. The insurance must be effective before this initial receipt of hazardous waste. At a minimum, the insurer must be licensed to transact the business of insurance in this state or eligible to provide insurance as an excess or surplus lines insurer in one or more

states.

b. The wording of the certificate of insurance must be identical to the wording specified in subsection 5 of section 33-24-05-81.

c. The closure and postclosure insurance policy must be issued for a face amount of at least equal to the current closure or postclosure, or both, cost estimate, except as provided in subsection 7. The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

d. The closure and postclosure insurance policy must guarantee that funds will be available to close the facility or perform postclosure final care, or both, when final closure or the postclosure period begins. The policy must also guarantee that once final closure or postclosure begins the insurer will be responsible for paying out funds up to an amount equal to the face amount of the policy upon the direction of the department to such party or parties as the department specifies.

e. After beginning partial or final closure or during the postclosure period, or both, an owner or operator or any other person authorized to perform closure or postclosure may request reimbursement for closure or postclosure expenditures by submitting itemized bills to the department. The owner or operator may request reimbursement for partial closure only if the remaining value of the policy is sufficient to cover the maximum cost of closing the facility over its remaining operating life. Within sixty days after receiving bills for closure or postclosure activities, the department will determine whether the expenditures are in accordance with the partial or final closure or postclosure plan or otherwise justified and if so, it will instruct the insurer to make reimbursement in such amounts as the department specifies in writing. If the department has reason to believe that the maximum cost of closure over the remaining life of the facility will be significantly greater than the face amount of the policy, the department may withhold reimbursement of such amounts as it deems prudent until it determines, in accordance with subsection 9, that the owner or operator is no longer required to maintain financial assurance for final closure of the facility. If the department does not instruct the insurer to make such reimbursement, it will provide the owner or operator with a detailed written statement of reasons.

f. The owner or operator shall maintain the policy in full force and effect until the department consents to termination of the policy by the owner or operator as specified in subdivision k. Failure to pay the premium without substitution of alternate financial assurance, as specified in this section, will constitute a significant violation of this chapter warranting such remedy as the department deems necessary. Such violation will be deemed to begin upon receipt by the department of a notice of future cancellation, termination, or failure to renew due to nonpayment

of the premium, rather than upon the date of expiration.

g. Each policy must contain a provision allowing assignment of the policy to a successor, owner, or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.

h. The policy must provide that the insurer may not cancel, terminate, or fail to renew the policy, except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate, or fail to renew the policy by sending notice by certified mail to the owner or operator and the department. Cancellation, termination, or failure to renew may not occur, however, during the one hundred twenty days beginning with the date of receipt of a notice by the department and the owner or operator as evidenced by the return receipts. Cancellation, termination, or failure to renew may not occur and the policy will remain in full force and effect in the event that on or before the date of expiration:

(1) The department deems the facility abandoned;

(2) The permit is terminated or revoked or a new permit is denied;

(3) Closure is ordered by the department or a state court or other court of competent jurisdiction;

(4) The owner or operator is named as debtor in a voluntary or involuntary proceeding under United States Code Title 11 (bankruptcy); or

(5) The premium due is paid.

i. When the current closure or postclosure, or both, cost estimate increases to an amount greater than the face amount of the policy the owner or operator within sixty days after the increase must either cause the face amount to be increased to an amount at least equal to the current closure or postclosure, or both, cost estimate and submit evidence of such increase to the department, or obtain other financial assurance as specified in this section to cover the increase. When the current closure or postclosure, or both, cost estimate decreases, the face amount may be reduced to the amount of the current closure or postclosure, or both, cost estimate following a written approval by the department.

j. For postclosure insurance only, commencing on the date that liability to make payments pursuant to a postclosure policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy less any payments made, multiplied by an amount equivalent to eighty-five percent of the most recent investment rate or of the equivalent coupon-issue

yield announced by the United States treasury for twenty-six-week treasury securities.

k. The department will give written consent to the owner or operator that it may terminate the insurance policy when:

(1) An owner or operator substitutes alternate financial assurance as specified in this section; or

(2) The department releases the owner or operator from the requirements of this section in accordance with subsection 9.

6. **Financial test and corporate guarantee for closure or postclosure care.**

a. An owner or operator may satisfy the requirements of this section by demonstrating that he passes a financial test as specified in this subsection. To pass this test, the owner or operator must meet the criteria of either paragraph 1 of subdivision a of subsection 6 or paragraph 2 of subdivision a of subsection 6.

(1) The owner or operator must have:

(a) Two of the following three ratios: A ratio of total liabilities to net worth less than two; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than one-tenth; and a ratio of current assets to current liabilities greater than one and five-tenths;

(b) Net working capital and tangible net worth each at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimate;

(c) Tangible net worth of at least ten million dollars; and

(d) Assets in the United States amounting to at least ninety percent of owner's or operator's total assets or at least six times the sum of the current closure and postclosure cost estimates, and the current plugging and abandonment cost estimates.

(2) The owner or operator must have:

(a) A current rating for owner's or operator's most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A, or Baa as issued by Moody's;

(b) Tangible net worth at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates;

(c) Tangible net worth of at least ten million dollars; and

(d) Assets located in the United States amounting to at least ninety percent of owner's or operator's total assets or at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates.

b. The phrase "current closure and postclosure cost estimates" as used in subdivision a of subsection 6 refers to the cost estimates required to be shown in paragraphs 1 through 4 of the letter from the owner's or operator's chief financial officer (subsection 6 of section 33-24-05-81) The phrase "current plugging and abandonment cost estimates" as used in subdivision a of subsection 6 refers to the cost estimates required to be shown in paragraphs 1 through 3 of the letter from the owners or operators chief financial officer (40 CFR part 144.70(f).

c. To demonstrate that the owner or operator meets financial test, the owner or operator must submit the following items to the department:

(1) A letter signed by the owner's or operator's chief financial officer and worded as specified in subsection 6 of section 33-24-05-81;

(2) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and

(3) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(a) The accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, ~~yearend~~ year-end financial statements for the latest fiscal year with the amounts in such financial statements; and

(b) In connection with that procedure, no matters came to accountant to believe that the specified data should be adjusted.

d. An owner or operator of a new facility must submit the items specified in subdivision c of subsection 6 to the department at least sixty days before the date on which hazardous waste is first received for treatment, storage, or disposal.

e. After the initial submission of items specified in subdivision c of subsection 6, the owner or operator must send updated information to the department within ninety days after the close of each succeeding fiscal year. This information must consist of all three items specified in subdivision c of subsection 6.

f. If the owner or operator no longer meets the requirements of subdivision a of subsection 6, the owner or operator must send notice to the department of intent to establish alternate financial assurance as specified in this section. The notice must be sent by certified mail within ninety days after the end of the fiscal year for which the ~~yearend~~ year-end financial data show that the owner or operator no longer meets the requirements. The owner or operator must provide the alternate financial assurance within one hundred twenty days after the end of each fiscal year.

g. The department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subdivision a of subsection 6, require reports of financial condition at any time from the owner or operator in addition to those specified in subdivision c of subsection 6. If the department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of subdivision a of subsection 6, the owner or operator must provide alternate financial assurance specified in this section within thirty days after notification of such a finding.

h. The department may disallow use of this test on the basis of qualification in the opinion expressed by the independent certified public accountant in the accountant's report on examination of the owner's or operator's statements (see paragraph 2 of subdivision c of subsection 6). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The department will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in this section within thirty days after notification of the disallowance.

i. The owner or operator is no longer required to submit the items specified in subdivision c of subsection 6 when:

   (1) An owner or operator substitutes alternate financial assurance as specified in this section; or

   (2) The department releases the owner or operator from the requirements of this section in accordance with subsection 9.

j. An owner or operator may meet the requirements of this section by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in subdivisions a through h of subsection 6 and must comply with the terms of the guarantee. The wording of the guarantee must be identical to the wording specified in subdivision ~~e~~ a of subsection ~~6~~ 8 of section 33-24-05-81. The certified copy of the guarantee must accompany the items sent to the department as specified in subdivision c of subsection 6. One of these items must be the letter from the

guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the guarantee. The terms of the guarantee must provide that:

(1) If the owner or operator fails to perform final closure or postclosure, or both, of a facility covered by the corporate guarantee in accordance with the closure or postclosure, or both, plan and other permit requirements when required to do so, the guarantor will do so or establish a trust fund as specified in subsection 1 in the name of the owner or operator.

(2) The corporate guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

(3) If the owner or operator fails to provide alternate financial assurance as specified in this section and fails to obtain the written approval of such alternate assurance from the department within ninety days after receipt by both the owner or operator and the department of a notice of cancellation of the corporate guarantee from the guarantor, the guarantor will provide such alternate financial assurance in the name of the owner or operator.

k. Companies not required to submit an audited financial statement to the United State securities and exchange commission must have an auditor's opinion prepared by an auditor licensed in this state.

7. **The use of multiple financial mechanisms.** An owner or operator may satisfy the requirements of this section by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, and insurance. The mechanisms must be as specified in this section, except that it is the combination of mechanisms, rather than the single mechanism which must provide financial assurance for an amount at least equal to the current closure or postclosure, or both, cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, the owner or operator may use the trust fund as the standby trust fund for the other mechanisms. A single standby trust fund may be established for two or more mechanisms. The department may use any or all of the mechanisms to provide for closure or postclosure care, or both, of the facility.

8. **Use of a financial mechanism for multiple facilities.** An owner or operator may use a financial assurance mechanism specified in this section to meet the

requirements of this section for more than one facility. Evidence of financial assurance submitted to the department must include a list showing for each facility the identification number, name, address, and the amount of funds for closure or postclosure, or both, care assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for closure or postclosure care of any of the facilities covered by the mechanism, the department may direct only the amount of funds designated for that facility unless the owner or operator agrees to the use of additional funds available under the mechanism.

9. **Release of the owner or operator from the requirements of this section.** Within sixty days after receiving certifications from the owner or operator and an independent registered professional engineer that final closure or postclosure care, or both, has been completed in accordance with an approved closure or postclosure care plan, the department will notify the owner or operator in writing that the owner or operator is no longer required by this section to maintain financial assurance for final closure or postclosure care, or both, of the facility, unless the department has reason to believe that final closure or postclosure, care or both, has not been in accordance with the approved closure or postclosure care plans. The department shall provide the owner or operator a detailed written statement of any such reason to believe that closure or postclosure, or both, has not been in accordance with the approved closure or postclosure plans.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-78. Use of a financial mechanism for both closure and postclosure care. An owner or operator may satisfy the requirements for financial assurance for both closure and postclosure care for one or more facilities by using a trust fund, surety bond, letter of credit, insurance, financial test, or corporate guarantee that meets the specifications for the mechanism in section 33-24-05-77. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for financial assurance of closure and of postclosure care.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-79. Liability requirements.

1. **Coverage for sudden accidental occurrences.** An owner or operator of a hazardous waste treatment, storage, or disposal facility, or a group of facilities, must demonstrate financial responsibility for bodily injury and

property damage to third parties caused by sudden accidental occurrences arising from operations of the facility or group of facilities. The owner or operator must have and maintain liability coverage for sudden accidental occurrences in the amount of at least one million dollars per occurrence with an annual aggregate of at least two million dollars, exclusive of legal defense costs. This liability coverage may be demonstrated as specified in subdivision a, b, c, d, e, or f:

a. An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this subdivision.

   (1) Each insurance policy must be amended by attachment of the hazardous waste facility liability endorsement or evidenced by a certificate of liability insurance. The wording of the endorsement must be identical to the wording specified in subsection 9 of section 33-24-05-81. The wording of the certificate of insurance must be identical to the wording specified in subsection 10 of section 33-24-05-81. The owner or operator shall submit a signed duplicate original of the endorsement or the certificate of insurance to the department. If requested by the department the owner or operator shall provide a signed duplicate original of the insurance policy. An owner or operator of a new facility shall submit the signed duplicate original of the hazardous waste facility liability endorsement or the certificate of liability insurance to the department at least sixty days before the day on which hazardous waste is first received for treatment, storage, or disposal. The insurance must be effective before this initial receipt of hazardous waste.

   (2) Each insurance policy must be issued by an insurer which, at a minimum, is licensed to transact the business of insurance or eligible to provide insurance as an excess or surplus lines insurer in one or more states.

b. An owner or operator may meet the requirements of this section by passing a financial test or using the guarantee for liability coverage as specified in subsections 6 and 7.

c. An owner or operator may meet the requirements of this section by obtaining a letter of credit for liability coverage as specified in subsection 8.

d. An owner or operator may meet the requirements of this section by obtaining a surety bond for liability coverage as specified in subsection 9.

e. An owner or operator may meet the requirements of this section by obtaining a trust fund for liability coverage as specified in subsection 10.

f. An owner or operator may demonstrate the required liability coverage

through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement of the guarantor. The amounts of coverage demonstrated must total at least the minimum amounts required by this section. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this subdivision, the owner or operator shall specify at least one such assurance as "primary" coverage and shall specify other assurances as "excess" coverage.

g. An owner or operator shall notify the department in writing within thirty days when:

(1) A claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in subdivisions a through f of subsection 1; or

(2) A certification of valid claim for bodily injury or property damages caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is entered between the owner or operator and third-party claimant for liability coverage under subdivisions a through f of subsection 1; or

(3) A final court order establishing a judgment for bodily injury or property damage caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is issued against the owner or operator or an instrument that is providing financial assurance for liability coverage under subdivisions a through f of subsection 1.

2. **Coverage for nonsudden accidental occurrences.** An owner or operator of a surface impoundment, landfill, land treatment facility, or disposal miscellaneous unit which is used to manage hazardous waste, or a group of such facilities, must demonstrate financial responsibility for bodily injury and property damage to third parties caused by nonsudden accidental occurrences arising from operations of the facility or group of facilities. The owner or operator must have and maintain liability coverage for nonsudden accidental occurrences in the amount of at least three million dollars per occurrence with an annual aggregate of at least six million dollars, exclusive of legal defense costs. An owner or operator who must meet the requirements of this section may combine the required per occurrence levels for sudden and nonsudden accidental occurrences into a single per occurrence level, and combine the required annual aggregate coverage levels for sudden and nonsudden accidental occurrences into a single annual aggregate level. Owners or operators who combine coverage levels for sudden and nonsudden accidental occurrences must maintain liability coverage in the amount of at least four million dollars per occurrence and eight million dollars annual aggregate.

This liability coverage may be demonstrated as specified in subdivision a, b, c, d, e, or f of subsection 2:

a. An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this subdivision.

   (1) Each insurance policy must be amended by attachment of the hazardous waste facility liability endorsement or evidenced by certificate of liability insurance. The wording of the endorsement must be identical to the wording specified in subsection 9 of section 33-24-05-81. The wording of the certificate of insurance must be identical to the wording specified in subsection 10 of section 33-24-05-81. The owner or operator shall submit a signed duplicate original of the endorsement or the certificate of insurance to the department. If requested by the department, the owner or operator shall provide a signed duplicate original of the insurance policy. An owner or operator of a new facility shall submit the signed duplicate original of the hazardous waste facility liability endorsement or the certificate of liability insurance to the department at least sixty days before the date on which hazardous waste is first received for treatment, storage, or disposal. The insurance must be effective before this initial receipt of hazardous waste.

   (2) Each insurance policy must be issued by an insurer which, at a minimum, is licensed to transact the business of insurance or eligible to provide insurance as an excess or surplus lines insurer in one or more states.

b. An owner or operator may meet the requirements of this section by passing a financial test or using the guarantee for liability coverage as specified in subsections 6 and 7.

c. An owner or operator may meet the requirements of this section by obtaining a letter of credit for liability coverage as specified in subsection 8.

d. An owner or operator may meet the requirements of this section by obtaining a surety bond for liability coverage as specified in subsection 9.

e. An owner or operator may meet the requirements of this section by obtaining a trust fund for liability coverage as specified in subsection 10.

f. An owner or operator may demonstrate the required liability coverage through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement

of the guarantor. The amounts of coverage demonstrated must total at least the minimum amount required by this section. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this subdivision, the owner or operator shall specify at least one such assurance as "primary" coverage and shall specify other assurance as "excess" coverage.

g. An owner or operator shall notify the department in writing within thirty days when:

(1) A claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in subdivisions a through f of subsection 2; or

(2) A certification of valid claim for bodily injury or property damages caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is entered between the owner or operator and third-party claimant for liability coverage under subdivisions a through f of subsection 2; or

(3) A final court order establishing a judgment for bodily injury or property damage caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is issued against the owner or operator or an instrument that is providing financial assurance for liability coverage under subdivisions a through f of subsection 2.

3. **Request for variance.** If an owner or operator can demonstrate to the satisfaction of the department that the levels of responsibility required by subsections 1 or 2 are not consistent with the degree and duration of risk associated with treatment, storage, or disposal at the facility or group of facilities, the owner or operator may obtain a variance from the department. The request for a variance must be submitted to the department as part of the permit application under chapter 33-24-06 for a facility that does not have a permit or pursuant to the procedures for permit modification under chapter 33-24-07 for a facility that has a permit. If granted, the variance will take the form of an adjusted level of required liability coverage, such level to be based on the department's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of facilities. The department may require an owner or operator who requests a variance to provide such technical and engineering information as is deemed necessary by the department to determine a level of financial responsibility other than that required by subsection 1 or 2. Any request for a variance for a permitted facility will be treated as a request for permit modification under chapters 33-24-06 and 33-24-07.

4. **Adjustments by the department.** If the department determines that the levels of financial responsibility required by subsection 1 or 2 are not consistent with the degree and duration of risk associated with treatment, storage, or

disposal at the facility or group of facilities, the department may adjust the level of financial responsibility required under subsection 1 or 2 as may be necessary to protect human health and the environment. This adjusted level will be based on the department's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of facilities. In addition, if the department determines that there is a significant risk to human health and the environment from nonsudden accidental occurrences resulting from the operation of a facility that is not a surface impoundment, landfill, or land treatment facility, it may require that an owner or operator of the facility comply with subsection 2. An owner or operator shall furnish to the department within a reasonable time any information which the department requests to determine whether cause exists for such adjustments of level or type of coverage. Any adjustment of the level or type of coverage for a type of facility that has a permit will be treated as a permit modification under chapters 23-24-06 and 33-24-07.

5. **Period of coverage.** Within sixty days after receiving certifications from the owner or operator and an independent registered professional engineer that final closure has been completed in accordance with the approved closure plan, the department will notify the owner or operator in writing that he is no longer required by this section to maintain liability coverage for that facility, unless the department has reason to believe that closure has not been in accordance with the approved closure plan.

6. **Financial tests for liability coverage.**

   a. An owner or operator may satisfy the requirements of this section by demonstrating that the owner or operator passes a financial test as specified in this section. To pass this test the owner or operator must meet the criteria of paragraph 1 of subdivision a of subsection 6 or paragraph 2 of subdivision a of subsection 6:

      (1) The owner or operator must have:

         (a) Net working capital and tangible net worth each at least six times the amount of liability coverage to be demonstrated by this test;

         (b) Tangible net worth of at least ten million dollars; and

         (c) Assets in the United States amounting to either: (1) at least ninety percent of the owner's or operator's total assets; or (2) at least six times the amount of liability coverage to be demonstrated by this test.

      (2) The owner or operator must have:

         (a) A current rating for the owner's or operator's most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's, or Aaa, Aa, A, or Baa as issued by Moody's;

(b) Tangible net worth of at least ten million dollars;

(c) Tangible net worth at least six times the amount of liability coverage to be demonstrated by this test; and

(d) Assets in the United States amounting to either: (1) at least ninety percent of the owner's or operator's total assets; or (2) at least six times the amount of liability coverage to be demonstrated by this test.

b. The phrase "amount of liability coverage" as used in subdivision a of subsection 6 refers to the annual aggregate amounts for which coverage is required under subsections 1 and 2.

c. To demonstrate that the owner or operator meets this test, the owner or operator must submit the following three items to the department:

(1) A letter signed by the owner's or operator's chief financial officer and worded as specified in subsection 7 of section 33-24-05-81. If an owner or operator is using the financial test to demonstrate both assurance for closure or postclosure care, as specified by subsection 6 of section 33-24-05-77, and liability coverage, the owner or operator must submit the letter specified in subsection 7 of section 33-24-05-81 to cover both forms of financial responsibility; a separate letter as specified in subsection 6 of section 33-24-05-81 is not required.

(2) A copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year.

(3) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(a) He has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, ~~yearend~~ year-end financial statements for the latest fiscal year with the amounts of such financial statements; and

(b) In connection with that procedure, no matters came to the accountant's attention which cause the accountant to believe that the specified data should be adjusted.

d. An owner or operator of a new facility must submit the items specified in subdivision c of subsection 6 to the department at least sixty days before the date on which hazardous waste is first received for treatment, storage, or disposal.

e. After the initial submission of items specified in subdivision c of subsection 6, the owner or operator must send updated information to the

department within ninety days after the close of each succeeding fiscal year. This information must consist of all three items specified in subdivision c of subsection 6.

f. If the owner or operator no longer meets the requirements of subdivision a of subsection 6, the owner or operator must obtain insurance, a letter of credit, a surety bond, a trust fund, or a guarantee for the entire amount of required liability coverage as specified in this section. Evidence of liability coverage must be submitted to the department within ninety days after the end of the fiscal year for which the ~~yearend~~ year-end financial data shows that the owner or operator no longer meets the test requirements.

g. The department may disallow use of this test on the basis of qualifications and the opinion expressed by the independent certified public accountant in the accountant's report on examination of the owner's or operator's financial statement (see paragraph 2 of subdivision c of subsection 6). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The department will evaluate other qualifications on an individual basis. The owner or operator must provide evidence of insurance for the entire amount of required liability coverage as specified in this section within thirty days after notification or disallowance.

7. **Guarantee for liability coverage.**

a. Subject to subdivision b, an owner or operator may meet the requirements of this section by obtaining a written guarantee, hereinafter referred to as "guarantee". The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in subdivisions a through f of subsection 6. The wording of the guarantee must be identical to the wording specified in subdivision b of subsection ~~6~~8 of section 33-24-05-81. A certified copy of the guarantee must accompany the items sent to the department as specified in subdivision c of subsection 6. One of these items must be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the new guarantee.

(1) If the owner or operator fails to satisfy a judgment based on a determination of liability for bodily injury or property damage to third parties caused by sudden or nonsudden accidental occurrences (or both as the case may be), arising from the operation of facilities covered by this corporate guarantee, or fails to pay an

amount agreed to in settlement of claims arising from or alleged to arise from such injury or damage, the guarantor will do so up to the limits of the coverage.

b. The following applies:

(1) In the case of corporations incorporated in the United States, a ~~corporate~~ guarantee may be used to satisfy the requirements of this section only if the attorneys general or insurance commissioners of (a) the state in which the guarantor is incorporated, and (b) each state in which a facility covered by the guarantee is located have submitted a written statement to the department that a ~~corporate~~ guarantee executed as described in this section and subdivision b of subsection 8 of section 33-24-05-81 is a legally valid and enforceable obligation in that state.

(2) In the case of corporations incorporated outside the United States, a corporate guarantee may be used to satisfy the requirements of this section only if (a) the non-United States corporation has identified a registered agent for service of process in each state in which a facility covered by the guarantee is located and in the state in which it has its principal place of business, and (b) the attorney general or insurance commissioner of each state in which a facility covered by the guarantee is located and the state in which the guarantor corporation has its principal place of business, has submitted a written statement to the department that a corporate guarantee executed as described in this section and subdivision b of subsection 8 of section 33-24-05-81 is legally valid and enforceable obligation in that state.

8. **Letter of credit for liability coverage.**

a. An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit that conforms to the requirements of this subsection and submitting a copy of the letter of credit to the department.

b. The financial institution issuing the letter of credit must be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency.

c. The wording of the letter of credit must be identical to the wording specified in subsection 11 of section 33-24-05-81.

d. An owner or operator who uses a letter of credit to satisfy the requirements of this section may also establish a standby trust fund. Under the terms of such a letter of credit, all amounts paid pursuant to a draft by the trustee of the standby trust will be deposited by the issuing institution into the standby trust in accordance with instructions from the trustee. The trustee of the standby trust fund

must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

e. The wording of the standby trust fund must be identical to the wording specified in subsection 14 of section 33-24-05-81.

9. **Surety bond for liability coverage.**

a. An owner or operator may satisfy the requirements of this section by obtaining a surety bond that conforms to the requirements of this subsection and submitting a copy of the bond to the department.

b. The surety company issuing the bond must be among those listed as acceptable sureties on federal bonds in the most recent circular 570 of the United States department of the treasury.

c. The wording of the surety bond must be identical to the wording specified in subsection 12 of section 33-24-05-81.

d. A surety bond may be used to satisfy the requirements of this section only if the attorneys general or insurance commissioners of (1) the state in which the surety is incorporated, and (2) each state in which a facility covered by the surety bond is located have submitted a written statement to the department that a surety bond executed as described in this section and in subsection 12 of section 33-24-05-81 is a legally valid and enforceable obligation in that state.

10. **Trust fund for liability coverage.**

a. An owner or operator may satisfy the requirements of this section by establishing a trust fund that conforms to the requirements of this subsection and submitting an originally signed duplicate of the trust agreement to the department.

b. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

c. The trust fund for liability coverage must be funded for the full amount of the liability coverage to be provided by the trust fund before it may be relied upon to satisfy the requirements of this section. If at any time after the trust fund is created the amount of funds in the trust fund is reduced below the full amount of the liability coverage to be provided, the owner or operator, by the anniversary date of the establishment of the fund, must either add sufficient funds to the trust fund to cause its value to equal the full amount of liability coverage to be provided or obtain other financial assurance as specified in this section to cover the difference. For purposes of this subdivision, "the full amount of the liability coverage to be provided" means the amount of coverage for sudden or nonsudden occurrences, or both, required to be provided by the owner or operator by this section, less the amounts of

financial assurance for liability coverage that is being provided by other financial assurance mechanisms being used to demonstrate financial assurance by the owner or operator.

d. The wording of the trust fund must be identical to the wording specified in subsection 13 of section 33-24-05-81.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-80. Incapacity of owners or operators, guarantors or financial institutions.

1. An owner or operator must notify the department by certified mail of the commencement of a voluntary or involuntary proceeding under United States Code Title 11 (bankruptcy), naming the owner or operator as debtor within ten days after commencement of the proceeding. A guarantor of a corporate guarantee as specified in subsection 6 of section 33-24-05-77 or in subsection 7 of section 33-24-05-79 must make such notification if the guarantor is named as debtor as required under the terms of the corporate guarantee.

2. An owner or operator who fulfills the requirements of sections 33-24-05-77 or 33-24-05-79 by obtaining a trust fund, surety bond, letter of credit, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as a trustee, or of the institution issuing the surety bond, letter of credit, or insurance policy to issue such instruments. The owner or operator shall establish other financial assurance or liability coverage within sixty days after such an event.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-81. Wording of the instruments.

1. Trust agreement and certification of acknowledgment.

   a. A trust agreement for a trust fund as specified in section 33-24-05-77 must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted.

      TRUST AGREEMENT, the "AGREEMENT" entered into as of [date] by and between [name of the owner or operator] a [name of state] [insert "corporation" "partnership," "association" or "proprietorship"], the "GRANTOR," and [name of corporate trustee], [insert "incorporated in the state of

_____" or "a national bank"], the "TRUSTEE".

Whereas, the North Dakota ~~state~~ department of health ~~and consolidated laboratories~~ "DEPARTMENT" a regulatory agency of the state of North Dakota, has established certain regulations applicable to the GRANTOR requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure or postclosure, or both, care of the facility,

Whereas, the GRANTOR has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein,

Whereas, the GRANTOR acting through its duly authorized officers has selected the TRUSTEE to be the ~~trustee~~ TRUSTEE under this ~~agreement~~ AGREEMENT and the TRUSTEE is willing to act as ~~trustee~~ TRUSTEE,

Now, therefore, the GRANTOR and the TRUSTEE agree as follows:

Section 1. Definitions. As used in this AGREEMENT:

(a) The term GRANTOR means the owner or operator who enters into this AGREEMENT and any successors or assigns of the GRANTOR.

(b) The term TRUSTEE means the TRUSTEE who enters into this AGREEMENT and any successor TRUSTEE.

Section 2. Identification of Facilities and Cost Estimate. This AGREEMENT pertains to the facilities and cost estimates identified on attached schedule A [on schedule A for each facility list the identification number, name, and the current closure or postclosure, or both, cost estimates or portions thereof for which financial assurance is demonstrated by this AGREEMENT].

Section 3. Establishment of ~~fund~~ FUND. The GRANTOR and the TRUSTEE hereby establish a trust fund, the FUND, for the benefit of the ~~department~~ DEPARTMENT. The GRANTOR and the TRUSTEE intend that no third party have access to the FUND, except as herein provided. The FUND is established initially as consisting of the property which is acceptable to the TRUSTEE and described in schedule B attached hereto. Such property and any other property subsequently transferred to the TRUSTEE is referred to as the FUND, together with all earnings and profits thereon, less any payments or distributions made by the TRUSTEE pursuant to this AGREEMENT. The FUND must be held by the TRUSTEE, IN TRUST, as herein provided. The TRUSTEE is not responsible, nor may it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the GRANTOR any payments necessary to discharge any liabilities of the GRANTOR established by the DEPARTMENT.

Section 4. Payment for Closure and Postclosure Care. The TRUSTEE shall make payments from the FUND as the DEPARTMENT shall direct, in writing, to provide for the payment of the cost of closure, and or postclosure

care of the facilities covered by this AGREEMENT. The TRUSTEE shall reimburse the GRANTOR or other persons as specified by the DEPARTMENT from the FUND for closure and postclosure expenditures in such amounts as the DEPARTMENT shall direct in writing. In addition, the TRUSTEE shall refund to the GRANTOR such amounts as the DEPARTMENT specifies in writing. Upon refund such funds shall no longer constitute part of the FUND as defined herein.

Section 5. Payments Comprising the FUND. Payments made to the TRUSTEE for the FUND must consist of cash or securities acceptable to the TRUSTEE.

Section 6. TRUSTEE Management. The TRUSTEE shall invest and reinvest the principle and income of the FUND and keep the FUND invested as a single FUND without distinction between principle and income in accordance with general investment policies and guidelines which the GRANTOR may communicate in writing to the TRUSTEE from time to time, subject however to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the FUND, the TRUSTEE shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(a) Securities or other obligations of the GRANTOR or any other owner or operator of the facilities or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), may not be acquired or held unless they are securities or other obligations of a federal or state government;

(b) The TRUSTEE is authorized to invest the FUND in time or demand deposits of the TRUSTEE, to the extent insured by an agency of the federal or state government; and

(c) The TRUSTEE is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The TRUSTEE is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the FUND to any common, commingled, or collective trust fund created by the TRUSTEE in which the FUND is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including

one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the TRUSTEE. The TRUSTEE may vote such shares in its discretion.

Section 8. Express Powers of TRUSTEE. Without, in any way, eliminating the powers and discretions conferred upon the TRUSTEE by the other provisions of this AGREEMENT or by law, the TRUSTEE is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the TRUSTEE is bound to see the application of the purchase money or to inquire into the validity or expediency of any such sale or disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the FUND in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the TRUSTEE in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a federal reserve bank, but the books and records of the TRUSTEE shall at all times show that all such securities are part of the FUND;

(d) To deposit any cash in the FUND in interest bearing accounts maintained or savings certificates issued by the TRUSTEE, in its separate capacity, or in any other banking institution affiliated with the TRUSTEE to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the FUND.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the FUND and all brokerage commissions incurred by the FUND shall be paid from the FUND. All other expenses incurred by the TRUSTEE in connection with the administration of this TRUST, including fees for legal services rendered to the TRUSTEE, the compensation of the TRUSTEE to the extent not paid directly by the GRANTOR and all other proper charges and disbursements of the TRUSTEE, must be paid from the FUND.

Section 10. Annual Valuation. The TRUSTEE shall annually, at least thirty days prior to the anniversary date of establishment of the FUND, furnish to the GRANTOR and to the DEPARTMENT a statement confirming the value of the TRUST. Any securities in the FUND must be valued at market value as of no more than sixty days prior to the anniversary date of establishment of the FUND. The failure of the GRANTOR to object in writing to the TRUSTEE within ninety days after the statement has been furnished to the GRANTOR and the DEPARTMENT, constitutes a conclusively binding assent by the GRANTOR barring the GRANTOR from asserting any claim or liability against the TRUSTEE with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The TRUSTEE may from time to time consult with counsel, who may be counsel to the GRANTOR, with respect to any question arising as to construction of this AGREEMENT or any action to be taken hereunder. The TRUSTEE shall be fully protected to the extent permitted by law in acting upon the advice of counsel.

Section 12. TRUSTEE Compensation. The TRUSTEE is entitled to reasonable compensation for its services as agreed upon in writing from time to time with the GRANTOR.

Section 13. Successor TRUSTEE. The TRUSTEE may resign or the GRANTOR may replace the TRUSTEE, but such resignation or replacement is not effective until the GRANTOR has appointed a successor ~~trustee~~ TRUSTEE and this successor accepts the appointment. The successor ~~trustee~~ TRUSTEE shall have the same powers and duties as those conferred upon the TRUSTEE hereunder. Upon the successor ~~trustee's~~ TRUSTEE'S acceptance of the appointment, the TRUSTEE shall assign, transfer, and pay over to the successor ~~trustee~~ TRUSTEE the funds and properties then constituting the FUND. If for any reason, the GRANTOR cannot or does not act in the event of the resignation of the TRUSTEE, the TRUSTEE may apply to a court of competent jurisdiction for the appointment of a successor ~~trustee~~ TRUSTEE or for instructions. The successor ~~trustee~~ TRUSTEE shall specify the date on which it assumes administration of the TRUST in a writing sent to the GRANTOR, the DEPARTMENT, and the present TRUSTEE by certified mail ten days before such change becomes effective. Any expenses incurred by the TRUSTEE as a result of any of the acts contemplated by this section must be paid as provided in section 9.

Section 14. Instructions to the TRUSTEE. All orders, requests, and instructions by the GRANTOR to the TRUSTEE must be in writing, signed by such persons as are designated in the attached Exhibit A, or such other designees as the GRANTOR may designate by amendment to Exhibit A. The TRUSTEE shall be fully protected in acting without inquiry in accordance with the GRANTOR'S orders, requests, and instructions. All orders, requests, and instructions by the DEPARTMENT to the TRUSTEE must be in writing, signed by an authorized DEPARTMENT representative and the TRUSTEE shall act and be fully protected in acting in accordance with such orders, requests, and instructions. The TRUSTEE shall have the right to assume, in the absence of written notice to the contrary, that

no event constituting a change or a termination of the authority of any person to act on behalf of the GRANTOR or the DEPARTMENT hereunder has occurred. The TRUSTEE shall have no duty to act in the absence of such orders, requests, and instructions from the GRANTOR or the DEPARTMENT, or both, except as provided for herein.

Section 15. Notice of Nonpayment. The TRUSTEE shall notify the GRANTOR and the DEPARTMENT by certified mail within ten days following the expiration of the thirty-day period after the anniversary of the establishment of the TRUST if no payment is received from the GRANTOR during that period. After the pay-in period is completed, the TRUSTEE is not required to send a notice of nonpayment.

Section 16. Amendment of AGREEMENT. This AGREEMENT may be amended by an instrument in writing executed by the GRANTOR, the TRUSTEE and the DEPARTMENT, or by the TRUSTEE and the DEPARTMENT, if the GRANTOR ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this AGREEMENT as provided in section 16, this TRUST is irrevocable and continues until terminated at the written ~~agreement~~ AGREEMENT of the GRANTOR, the TRUSTEE, and the DEPARTMENT, or by the TRUSTEE and the DEPARTMENT, if the GRANTOR ceases to exist. Upon termination of the TRUST, all remaining trust property, less final trust administration expenses, must be delivered to the GRANTOR.

Section 18. Immunity and Indemnification. The TRUSTEE may not incur personal liability of any nature in connection with any act or omission made in good faith in the administration of this TRUST or in carrying out any directions by the GRANTOR or the DEPARTMENT issued in accordance with this AGREEMENT. The TRUSTEE must be indemnified and saved harmless by the GRANTOR or from the ~~TRUST FUND~~ trust fund, or both, from and against any personal liability to which the TRUSTEE may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the GRANTOR fails to provide such defense.

Section 19. Choice of Law. This AGREEMENT must be administered, construed, and enforced according to the laws of the state of [North Dakota].

Section 20. Interpretation. As used in this AGREEMENT, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this AGREEMENT do not affect the interpretation or the legal efficacy of this AGREEMENT.

In Witness Whereof the parties have caused this AGREEMENT to be executed by their respective officers duly authorized and their corporate seals to be hereunto fixed and attested as of the date first above written: The parties below certify that the wording of this AGREEMENT is identical to the wording specified in subdivision a of subsection 1 of North Dakota

Administrative Code section 33-24-05-81 as such regulation was constituted on the date first above written.

[Signature of GRANTOR]

[Title]

[Attest:]

[Title]

[Seal]

[Signature of TRUSTEE]

[Attest:]

[Title]

[Seal]

b. The following is an example of the certification of acknowledgment which must accompany the ~~trust agreement~~ TRUST AGREEMENT for a trust fund as specified in subsection 1 of section 33-24-05-77.

State of _____

County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of notary public]

2. A surety bond guaranteeing payment into a trust fund as specified in subsection 2 of section 33-24-05-77 must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

FINANCIAL GUARANTEE BOND

Date bond executed: _____

Effective date: _____

Principal: [legal name and business address of owner or operator]

Type of organization: [insert "individual", "joint venture," "partnership" or "corporation"]

State of incorporation: _____

Surety(ies): [name(s) and business address(es)]

Identification number, name, address, and closure or postclosure, or both, amount for each facility guaranteed by this bond [indicate closure and postclosure amounts separately]: _____

Total penal sum of bond: $_____

Surety's bond number: _____

Know all persons by these presents that we the PRINCIPAL and SURETY(IES) hereto are firmly bound to the North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~ (hereinafter called the ~~department~~ DEPARTMENT) in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assignors jointly and severally: provided that where the SURETY(IES) are corporations acting as cosureties, we, the SURETIES, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each SURETY binds itself, jointly and severally with the PRINCIPAL, for the payment of such sum only as is set forth opposite the name of such SURETY, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said PRINCIPAL is required under North Dakota Century Code chapter 23-20.3 to have a permit in order to own or operate each hazardous waste management facility identified above, and

Whereas said PRINCIPAL is required to provide financial assurance for closure or closure and postclosure care as a condition of the permit, and

Whereas said PRINCIPAL shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of the obligation are such that if the PRINCIPAL shall faithfully, before the beginning of final closure of each facility identified above, fund the standby trust fund in the amounts identified above for the facility,

Or, if the PRINCIPAL shall fund the standby trust fund in such amounts within fifteen days after an order to begin closure is issued by the DEPARTMENT or a state or other court of competent jurisdiction,

Or, if the PRINCIPAL shall provide alternate financial assurance as specified in North Dakota Administrative Code chapter 33-24-05, as applicable, and

obtain the DEPARTMENT'S written approval of such assurance within ninety days after the date of notice of cancellation is received by both the PRINCIPAL and the DEPARTMENT from the SURETY(IES), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The SURETY(IES) shall become liable on this bond obligation only when the PRINCIPAL has failed to fulfill the conditions described above. Upon notification by the DEPARTMENT that the PRINCIPAL has failed to perform as guaranteed by this bond, the SURETY(IES) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the DEPARTMENT.

The liability of the SURETY(IES) shall not be discharged by any payment or any succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the SURETY(IES) hereunder exceed the amount of said penal sum.

The SURETY(IES) may cancel the bond by sending notice of cancellation by certified mail to the PRINCIPAL and to the DEPARTMENT, provided, however, that cancellation shall not occur during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by both the PRINCIPAL and the DEPARTMENT as evidenced by the return receipts.

The PRINCIPAL may terminate this bond by sending written notice to the SURETY(IES) provided, however, that no such notice shall become effective until the SURETY(IES) receive(s) written authorization for termination of the bond by the DEPARTMENT.

[The following paragraph is an optional rider that may be included, but is not required]

The PRINCIPAL and SURETY(IES) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new closure or postclosure, or both, amount, provided that the penal sum does not increase by more than twenty percent in any one year, and no decrease in the penal sum takes place without the written permission of the DEPARTMENT.

In witness whereof, the PRINCIPAL and SURETY(IES) have executed this financial guarantee bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the PRINCIPAL and SURETY(IES) and that the wording of this surety bond is identical to the wording specified in subsection 2 of North Dakota Administrative Code section 33-24-05-81 as such rule was constituted on the date this bond was executed.

PRINCIPAL
[Signature(s)]
[Name(s)]
[Title(s)]

[Corporate seal]

CORPORATE SURETY(IES)
[Name and address]
State of Incorporation: _____
Liability limit: $_____
[Signature(s)]
[Name(s) and Title(s)]
[Corporate seal]
[For every cosurety, provide signature(s), corporate seal, and other information in the same manner as for surety above.]

Bond premium: $_____

3. A surety bond guaranteeing performance of closure or postclosure care as specified in subsection 3 of section 33-24-05-77 must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

PERFORMANCE BOND

Date bond executed: _____

Effective Date: _____

PRINCIPAL: [Legal name and business address of owner or operator]

Type of organization: [Insert "Individual," "joint venture," "partnership," or "corporation"]

State of Incorporation:_____

SURETY(IES): [Name(s) and business address(es)]

_____

Identification number, name, address and closure or postclosure, or both, amount(s) for each facility guaranteed by this bond.

[Indicate closure and postclosure amount separately]:

_____

Total penal sum of bond: _____

Surety's bond number:_____

Know all persons by these presents, that we the PRINCIPAL and SURETY(IES) hereto are firmly bound to the North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~ (hereinafter called the DEPARTMENT), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally: Provided that,

where the SURETY(IES) are corporations acting as cosureties, we the SURETIES bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us and for all other purposes each SURETY binds itself jointly and severally with the PRINCIPAL for the payment of such sum only as is set forth opposite the name of each SURETY, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said PRINCIPAL is required under North Dakota Century Code chapter 23-20.3 to have a permit to own or operate each hazardous waste management facility identified above, and

Whereas said PRINCIPAL is required to provide financial assurance for closure, or closure and postclosure care as a condition of the permit, and

Whereas said PRINCIPAL shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of this obligation are that if the PRINCIPAL shall faithfully perform closure, when required to do so, of each facility for which this bond guarantees closure, in accordance with the closure plan and other requirements of the permit as such plan and permit may be amended pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

And if the PRINCIPAL shall faithfully perform postclosure care of each facility for which this bond guarantees postclosure care, in accordance with the postclosure plan and other requirements of the permit as such plan and permit may be amended pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the PRINCIPAL shall provide alternate financial assurance as specified in North Dakota Administrative Code chapter 33-24-05 and obtain the DEPARTMENT'S written approval of such assurance within ninety days after the date notice of cancellation is received by both the PRINCIPAL and the DEPARTMENT from the SURETY(IES) then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The SURETY(IES) shall become liable on this bond obligation only when the PRINCIPAL has failed to fulfill the conditions described above.

Upon notification by the DEPARTMENT that the PRINCIPAL has been found in violation of the closure requirements of North Dakota Administrative Code chapter 33-24-05 for a facility for which this bond guarantees performance of closure, the SURETY(IES) shall either perform closure in accordance with the closure plan and other permit requirements or place the closure amount guaranteed for the facility into the standby trust fund as directed by the DEPARTMENT.

Upon notification by the DEPARTMENT that the PRINCIPAL has been found in violation of the postclosure requirements of North Dakota Administrative Code

chapter 33-24-05 for a facility for which this bond guarantees performance of postclosure care, the SURETY(IES) shall either perform postclosure care in accordance with the postclosure plan and other permit requirements or place the postclosure amount guaranteed for the facility into a standby trust fund as directed by the DEPARTMENT.

Upon notification by the DEPARTMENT that the PRINCIPAL has failed to provide alternate financial assurance as specified in North Dakota Administrative Code chapter 33-24-05 and obtain written approval of such assurance from the DEPARTMENT during the ninety days following receipt by both the PRINCIPAL and the DEPARTMENT of a notice of cancellation of the bond, the SURETY(IES) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the DEPARTMENT.

The SURETY(IES) hereby waive(s) notification of amendments to closure plans, permits, applicable laws, statutes, rules, and regulations and agree(s) that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the SURETY(IES) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the SURETY(IES) hereunder exceed the amount of said penal sum.

The SURETY(IES) may cancel the bond by sending the notice of cancellation by certified mail to the PRINCIPAL and to the DEPARTMENT, provided, however, that cancellation shall not occur during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by both the PRINCIPAL and the DEPARTMENT as evidenced by the return receipts.

The PRINCIPAL may terminate this bond by sending written notice to the SURETY(IES) provided, however, that no such notice shall become effective until the SURETY(IES) receive(s) written authorization for termination of the bond by the DEPARTMENT.

[The following paragraph is an optional rider that may be included, but is not required].

PRINCIPAL and SURETY(IES) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new closure or postclosure, or both, amount, provided that the penal sum does not increase by more than twenty percent in any one year, and no decrease in the penal sum takes place without the written permission of the DEPARTMENT.

In Witness Whereof, the PRINCIPAL and SURETY(IES) have executed this performance bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the PRINCIPAL and the SURETY(IES) and that the wording of this surety bond is identical to the

wording specified in subsection 3 of North Dakota Administrative Code section 33-24-05-81 as such rule was constituted on the date this bond was executed.

Principal
[Signature(s)]
[Name(s)]
[Title(s)]
[Corporate Seal]

[CORPORATE SURETY(IES)]
[Name and Address]
State of Incorporation:_____
Liability Limit: $_____
[Signature(s)]
[Name(s) and Title(s)]
Corporate Seal:
[For every cosurety, provide signature(s), corporate seal, and other information in the same manner as for surety above].

Bond premium: $_____

4. A letter of credit as specified in subsection 4 of section 33-24-05-77 must be worded as follows except that instructions in brackets are to be replaced with the relevant information and the brackets deleted.

IRREVOCABLE STANDBY LETTER OF CREDIT

Chief, Environmental Health Section, North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~

Dear Sir or Madam:

We hereby establish our Irrevocable Standby Letter of Credit Number____ in your favor, at the request and for the account of [owner's or operator's name and address] up to the aggregate amount of [in words] United States Dollars $_____, available upon presentation by you of

(1) Your sight draft bearing reference to this letter of credit Number _____, and

(2) Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of North Dakota Century Code chapter 23-20.3".

This letter of credit is effective as of [date] and shall expire on [date] at least one year later, but such expiration date shall be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least one hundred twenty days before the current expiration date, we notify both you and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event

you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for one hundred twenty days after the date of receipt by both you and [owner's or operator's name], as shown on the signed return receipts.

When this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of [owner's or operator's name] in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in subsection 4 of North Dakota Administrative Code section 33-24-05-81 as such rule was constituted on the date shown immediately below.

[Signature(s) and Title(s) of Official(s) of issuing institution] [Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce", or "the Uniform Commercial Code"]

5. A certificate of insurance as specified in subsection 5 of section 33-24-05-77 must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted.

CERTIFICATE OF INSURANCE FOR CLOSURE OR POSTCLOSURE CARE

Name and address of insurer (hereinafter called the "INSURER"): _____

Name and address of Insured (hereinafter called the "INSURED"): _____

Facilities covered: [List for each facility: the identification number, name, address and amount of insurance for closure or the amount for postclosure care, or both. (These amounts for all facilities covered must cover the face amount shown below.)]

Face amount: _____

Policy Number: _____

Effective Date: _____

The INSURER hereby certifies that it has issued to the INSURED the policy of insurance identified above to provide financial assurance for [insert "closure" or "closure and postclosure care" or "postclosure care"] for the facilities identified above. The INSURER further warrants that such policy conforms in all respects with the requirements of subsection 5 of North Dakota Administrative Code section 33-24-05-77, as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any

provision of the policy inconsistent with such rules is hereby amended to eliminate such inconsistency.

When requested by the North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~ (DEPARTMENT) the INSURER agrees to furnish to the DEPARTMENT a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in subsection 5 of North Dakota Administrative Code section 33-24-05-81 as such rule was constituted on the date shown immediately below.

[Authorized signature for INSURER]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:_____

[Date]

6. A letter from the chief financial officer, as specified in subsection 6 of section 33-24-05-77, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Letter from Chief Financial Officer

[Address to North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~].

I am the chief financial officer of [name and address of firm]. This letter is in support of this firm's use of the financial test to demonstrate financial assurance for closure and/or postclosure costs, as specified in sections 33-24-05-74 through 33-24-05-88.

[Fill out the following five paragraphs regarding facilities and associated cost estimates. If your firm has no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its environmental protection agency identification number, name, address, and current closure and/or postclosure cost estimates. Identify each cost estimate as to whether it is for closure or postclosure care].

1. This firm is the owner or operator of the following facilities for which financial assurance for closure or postclosure care is demonstrated through the financial test specified in sections 33-24-05-74 through 33-24-05-88. The current closure and/or postclosure cost estimates covered by the test are shown for each facility:

2. This firm guarantees, through the guarantee specified in sections 33-24-

05-74 through 33-24-05-88, the closure or postclosure care of the following facilities owned or operated by the guaranteed party. The current cost estimates for the closure or postclosure care so guaranteed are shown for each facility: . The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee ; or (3) engaged in the following substantial business relationship with the owner or operator , and receiving the following value in consideration of this guarantee]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

3. In states where the environmental protection agency is not administering the financial requirements of subpart H of 40 CFR part 264 or 265, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or postclosure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in sections 33-24-05-74 through 33-24-05-88. The current closure and/or postclosure cost estimates covered by such a test are shown for each facility: .

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, postclosure care, is not demonstrated to the ~~department~~ DEPARTMENT through the financial test or any other financial assurance mechanism specified in sections 33-24-05-74 through 33-24-05-88 or equivalent or substantially equivalent state mechanisms. The current closure and/or postclosure cost estimates not covered by such financial assurance are shown for each facility: .

5. This firm is the owner or operator of the following underground injection control facilities for which financial assurance for plugging and abandonment is required under part 144 of the 40 CFR. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility: .

This firm [insert "is required" or "is not required"] to file a form 10K with the securities and exchange commission for the latest fiscal year.

The fiscal year of this firm ends on [month, day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, ~~yearend~~ year-end financial statements for the latest completed fiscal year, ended [date].

[Fill in Alternative I if the criteria of paragraph 1 of subdivision 1 of subsection 6 of section 33-24-05-77, or of paragraph 1 of subdivision a of subsection 5 of section 33-24-05-77 are used. Fill in Alternative II if the criteria of paragraph 2 of subdivision a of subsection 6 of section 33-24-05-77, or of paragraph 2 of subdivision a of subsection 5 of section 33-24-05-77 are used].

Alternative I

1.	Sum of current closure and postclosure cost estimate [total of all cost estimates shown in the five paragraphs above]	$_____
2.	Total liabilities [if any portion of the closure or postclosure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4]	$_____
3.	Tangible net worth	$_____
4.	Net worth	$_____
5.	Current assets	$_____
6.	Current liabilities	$_____
7.	Net working capital [line 5 minus line 6]	$_____
8.	The sum of net income plus depreciation, depletion, and amortization	$_____
9.	Total assets in United States (required only if less than 90% of firm's assets are located in the United States.)	$_____

		YES	NO
10.	Is line 3 at least $10 million?	____	____
11.	Is line 3 at least 6 times line 1?	____	____
12.	Is line 7 at least 6 times line 1?	____	____
13.	Are at least 90% of firm's assets located in the United States? If not, complete line 14	____	____
14.	Is line 9 at least 6 times line 1?	____	____
15.	Is line 2 divided by line 4 less than 2.0?	____	____
16.	Is line 8 divided by line 2 greater than 0.1?	____	____
17.	Is line 5 divided by line 6 greater than 1.5?	____	____

Alternative II

1. Sum of current closure and postclosure cost estimates [total of all cost estimates shown in the five paragraphs above] . . . . . $_____

2. Current bond rating of most recent issuance of this firm and name of rating service . . . . . $_____

3. Date of issuance of bond . . . . . _____

4. Date of maturity of bond . . . . . _____

5. Tangible net worth [if any portion of the closure and postclosure cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line] . . . . . $_____

6. Total assets in United States (required only if less than 90% of firm's assets are located in the United States) . . . . . $_____

	YES	NO
7. Is line 5 at least $10 million?	____	____
8. Is line 5 at least 6 times line 1?	____	____
9. Are at least 90% of firm's assets located in the United States? If not, complete line 10	____	____
10. Is line 6 at least 6 times line 1?	____	____

I hereby certify that the wording of this letter is identical to the wording specified in subsection 6 of section 33-24-05-81 as such regulations were constituted on the date shown immediately below.

[Signature]

[Name]

[Title]

[Date]

7. A letter from the chief financial officer, as specified in subsection 6 of section 33-24-05-79, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets

deleted.

Letter from Chief Financial Officer:

[Address to North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~].

I am the chief financial officer of [firm's name and address]. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage [insert "and closure and/or postclosure care" if applicable] as specified in sections 33-24-05-74 through 33-24-05-88.

[Fill out the following paragraphs regarding facilities and liability coverage. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its environmental protection agency identification number, name, and address.]

The firm identified above is the owner or operator of the following facilities for which liability coverage for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences is being demonstrated through the financial test specified in sections 33-24-05-74 through 33-24-05-88:

The firm identified above guarantees, through the guarantee specified in sections 33-24-05-74 through 33-24-05-88, liability coverage for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences at the following facilities owned or operated by the following:_____. The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee _____; or (3) engaged in the following substantial business relationship with the owner or operator _____, and receiving the following value in consideration of this guarantee _____]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

[If you are using the financial test to demonstrate coverage of both liability and closure and postclosure care, fill in the following five paragraphs regarding facilities and associated closure and postclosure cost estimates. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its environmental protection agency identification number, name, address, and current closure and/or postclosure cost estimates. Identify each cost estimate as to whether it is for closure or postclosure care].

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or postclosure care or liability coverage is demonstrated through the financial test specified in sections 33-24-05-74 through 33-24-05-88. The current closure and postclosure cost estimates covered by the test are shown for each facility: .

2. The firm identified above guarantees, through the guarantee specified in

sections 33-24-05-74 through 33-24-05-88, the closure and postclosure care or liability coverage of the following facilities owned or operated by the guaranteed party. The current cost estimates for closure or postclosure care so guaranteed are shown for each facility: .

3. In states where the environmental protection agency is not administering the financial requirements of sections 33-24-05-74 through 33-24-05-88, this firm is demonstrating financial assurance for the closure or postclosure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in sections 33-24-05-74 through 33-24-05-88. The current closure or postclosure cost estimates covered by such a test are shown for each facility: .

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, postclosure care, is not demonstrated to the ~~department~~ DEPARTMENT through the financial test or any other financial assurance mechanisms specified in sections 33-24-05-74 through 33-24-05-88 or equivalent or substantially equivalent state mechanisms. The current closure and/or postclosure cost estimates not covered by such financial assurance are shown for each facility: .

5. This firm is the owner or operator or guarantor of the following underground injection control facilities for which financial assurance for plugging and abandonment is required under part 144 of the 40 CFR and is assured through a financial test. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility: .

This firm [insert "is required" or "is not required"] to file a form 10K with the securities and exchange commission for the latest fiscal year.

The fiscal year of this firm ends on [month, day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, ~~yearend~~ year-end financial statements for the latest completed fiscal year, ended [date].

Part A. Liability Coverage for Accidental Occurrences

[Fill in Alternative I if the criteria of paragraph 1 of subdivision a of subsection 6 of section 33-24-05-79 are used. Fill in Alternative II if the criteria of paragraph 2 of subdivision a of subsection 6 of section 33-24-05-79 are used].

Alternative I

1. Amount of annual aggregate liability coverage to be demonstrated . . . . . $_____

2. Current assets . . . . . $_____

3. Current . . . . . $_____

4. Net working capital (line 2 minus line 3) . . . . . $_____

5. Tangible net worth . . . . . $_____

6. If less than 90% of assets are located in the United States, give total United States assets . . . . . $_____

	YES	NO
7. Is line 5 at least $10 million?	____	____
8. Is line 4 at least 6 times line 1?	____	____
9. Is line 5 at least 6 times line 1?	____	____
	YES	NO
10. Are at least 90% of assets located in the United States? If not, complete line 11	____	____
11. Is line 6 at least 6 times line 1?	____	____

Alternative II

1. Amount of annual aggregate liability coverage to be demonstrated . . . . . $_____

2. Current bond rating of most recent issuance and name of rating service . . . . . $_____

3. Date of issuance of bond . . . . . _____

4. Date of maturity of bond . . . . . _____

5. Tangible net worth . . . . . $_____

6. Total assets in United States (required only if less than 90% of assets are located in the United States) . . $_____

	YES	NO
7. Is line 5 at least $10 million?	____	____
8. Is line 5 at least 6 times line 1?	____	____
9. Are at least 90% of assets located in the United States? If not, complete line 10	____	____
10. Is line 6 at least 6 times line 1?	____	____

[Fill in part B if you are using the financial test to demonstrate assurance of both liability coverage and closure or postclosure care].

Part B. Closure or Postclosure Care and Liability Coverage

[Fill in Alternative I if the criteria of paragraph 1 of subdivision a of subsection 6 of section 33-24-05-77 and paragraph 1 of subdivision a of subsection 6 of section 33-24-05-79 are used. Fill in Alternative II if the criteria of paragraph 2 of subdivision a of subsection 6 of section 33-24-05-77 and paragraph 2 of subdivision a of subsection 6 of section 33-24-05-79 are used].

Alternative I

1. Sum of current closure and postclosure cost estimates (total of all cost estimates listed above) . . . . . $_____

2. Amount of annual aggregate liability coverage to be demonstrated . . . . . $_____

3. Sum of lines 1 and 2 . . . . . $_____

4. Total liabilities (if any portion of your closure or postclosure cost estimates is included in your total liabilities, you may deduct that portion from this line and add that amount to lines 5 and 6) . . . $_____

5. Tangible net worth . . . . . $_____

6. Net worth . . . . . $_____

7. Current assets . . . . . $_____

8. Current liabilities . . . . . $_____

9. Net working capital (line 7 minus line 8) . . . . . $_____

10. The sum of net income plus depreciation, depletion, and amortization . . . . . $_____

11. Total assets in United States (required only if less than 90% of assets are located in the United States) . . . . . $_____

	YES	NO
12. Is line 5 at least $10 million?	____	____
13. Is line 5 at least 6 times line 3?	____	____
14. Is line 9 at least 6 times line 3?	____	____

15. Are at least 90% of assets located in the

United States? If not, complete line 16 . . . . . ___ ___

16. Is line 11 at least 6 times line 3? . . . . . ___ ___

17. Is line 4 divided by line 6 less than 2.0? . . . . . ___ ___

18. Is line 10 divided by line 4 greater than 0.1? . . . . . ___ ___

19. Is line 7 divided by line 8 greater than 1.5? . . . . . ___ ___

Alternative II

1. Sum of current closure and postclosure cost estimate (total of all cost estimates listed above) . . . . . $_____

2. Amount of annual aggregate liability coverage to be demonstrated . . . . . $_____

3. Sum of lines 1 and 2 . . . . . $_____

4. Current bond rating of most recent issuance and name of rating service . . . . . _____

5. Date of issuance of bond . . . . . _____

6. Date of maturity of bond . . . . . _____

7. Tangible net worth (if any portion of the closure or postclosure cost estimates is included in "total liabilities" on your financial statements you may add that portion to this line) . . . . . $_____

8. Total assets in the United States (required only if less than 90% of assets are located in the United States) . . . . . $_____

	YES	NO
9. Is line 7 at least $10 million?	___	___
10. Is line 7 at least 6 times line 3?	___	___
11. Are at least 90% of assets located in the United States? If not, complete line 12	___	___
12. Is line 8 at least 6 times line 3?	___	___

I hereby certify that the wording of this letter is identical to the wording specified in subsection 7 of section 33-24-05-81 as such regulations were constituted on the date shown immediately below.

[Signature]

[Name]

[Title]

[Date]

8. Corporate Guarantee

a. A corporate guarantee, as specified in subsection 6 of section 33-24-05-77, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Corporate Guarantee for Closure or Postclosure Care

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of the state of [insert name of state], herein referred to as guarantor. This guarantee is made on behalf of the [owner or operator] of [business address], which is [one of the following: "our subsidiary"; "a subsidiary of [name and address of common parent corporation], of which guarantor is a subsidiary"; or "an entity with which guarantor has a substantial business relationship, as defined in subsection 8 of section 33-24-05-75 to the ~~United States environmental protection agency (EPA).~~ DEPARTMENT.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in subsection 6 of section 33-24-05-77.

2. [Owner or operator] owns or operates the following hazardous waste management facility(ies) covered by this guarantee: [List for each facility: environmental protection agency identification number, name, and address. Indicate for each whether guarantee is for closure, postclosure care, or both].

3. "Closure plans" and "postclosure plans" as used below refer to the plans maintained as required by sections 33-24-05-59 through 33-24-05-73 for the closure and postclosure care of facilities as identified above.

4. For value received from [owner or operator], guarantor guarantees to the ~~department~~ DEPARTMENT that in the event that [owner or operator] fails to perform [insert "closure", "postclosure care", or "closure and postclosure care"] of the above facility(ies) in accordance with the closure or postclosure plans and other permit or interim status requirements when required to do so, the guarantor shall do so or establish a trust fund as specified in sections 33-24-05-74 through 33-24-05-88, as applicable, in the name of [owner or operator] in the amount of the current closure or postclosure cost estimates as specified in sections 33-24-05-74 through 33-24-

05-88.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within ninety days, by certified mail, notice to the ~~department~~ DEPARTMENT and to [owner or operator] that he intends to provide alternate financial assurance as specified in sections 33-24-05-74 through 33-24-05-88, as applicable, in the name of [owner or operator]. Within one hundred twenty days after the end of such fiscal year, the guarantor shall establish such financial assurance unless [owner or operator] has done so.

6. The guarantor agrees to notify the ~~department~~ DEPARTMENT by certified mail, of a voluntary or involuntary proceeding under title 11 (Bankruptcy), United States Code, naming guarantor as debtor, within ten days after commencement of the proceeding.

7. Guarantor agrees that within thirty days after being notified by the ~~department~~ DEPARTMENT of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure or postclosure care, he shall establish alternate financial assurance as specified in sections 33-24-05-74 through 33-24-05-88, as applicable, in the name of [owner or operator] unless [owner or operator] has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure or postclosure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure or postclosure, or any other modification or alteration of an obligation of the owner or operator pursuant to sections 33-24-05-01 through 33-24-05-190 ~~and~~, 33-24-05-300 through 33-24-05-524~~.~~ , and 33-24-05-550 through 33-24-05-559.

9. Guarantor agrees to remain bound under this guarantee for as long as [owner or operator] must comply with the applicable financial assurance requirements of sections 33-24-05-74 through 33-24-05-88 for the above-listed facilities, except as provided in paragraph 10 of this ~~agreement~~ AGREEMENT.

10. [Insert the following language if the guarantor is (a) a direct or higher-tier corporate parent, or (b) a firm whose parent corporation is also the parent corporation of the owner or operator]:

Guarantor may terminate this guarantee by sending notice by certified mail to the ~~department~~ DEPARTMENT and to [owner or operator], provided that this guarantee may not be terminated unless and until [the owner or operator] obtains, and the ~~department~~ DEPARTMENT approve(s), alternate closure and/or postclosure care coverage complying with section 33-24-05-77.

~~[Insert the following language if the guarantor is a firm qualifying as a guarantor due to its "substantial business relationship" with its owner or operator].~~

Guarantor may terminate this guarantee one hundred twenty days following the receipt of notification, through certified mail, by the ~~department~~ DEPARTMENT and by [the owner or operator].

11. Guarantor agrees that if [owner or operator] fails to provide alternate financial assurance as specified in sections 33-24-05-74 through 33-24-05-88, as applicable, and obtain written approval of such assurance from the ~~department~~ DEPARTMENT within ninety days after a notice of cancellation by the guarantor is received by the ~~department~~ DEPARTMENT from guarantor, guarantor shall provide such alternate financial assurance in the name of [owner or operator].

12. Guarantor expressly waives notice of acceptance of this guarantee by the ~~department~~ DEPARTMENT or by [owner or operator]. Guarantor also expressly waives notice of amendments or modifications of the closure and/or postclosure plan and of amendments or modifications of the facility permit(s).

I hereby certify that the wording of this guarantee is identical to the wording specified in subsection 8 of section 33-24-05-81 as such regulations were constituted on the date first above written.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:

b. A guarantee, as specified in subsection 7 of section 33-24-05-79, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Guarantee for Liability Coverage

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of [if incorporated within the United States insert "the state of " and insert name of state; if incorporated outside the United States insert the name of the country in which incorporated, the principal place of business within the United States, and the name and address of the registered agent in the state of the principal place of business], herein referred to as guarantor. This guarantee is made on behalf of [owner or operator] of [business address], which is one of the following: "our subsidiary"; "a subsidiary of [name and address of common parent corporation], or which guarantor is a subsidiary"; or "an entity with which guarantor has a substantial business relationship, as defined in subsection 8 of section 33-24-05-75", to any and all third parties who have

sustained or may sustain bodily injury or property damage caused by [sudden and/or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in subsection 7 of section 33-24-05-79.

2. [Owner or operator] owns or operates the following hazardous waste management facility(ies) covered by this guarantee: [List for each facility: environmental protection agency identification number, name, and address; and if guarantor is incorporated outside the United States list the name and address of the guarantor's registered agent in each State.] This corporate guarantee satisfies Resource Conservation and Recovery Act third-party liability requirements for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences in above-named owner or operator facilities for coverage in the amount of [insert dollar amount] for each occurrence and [insert dollar amount] annual aggregate.

3. For value received from [owner or operator], guarantor guarantees to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden and/or nonsudden] accidental occurrences arising from operations of the facility(ies) covered by this guarantee that in the event that [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by [sudden and/or nonsudden] accidental occurrences, arising from the operation of the above-named facilities, or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor will satisfy such judgment(s), award(s), or settlement agreement(s) up to the limits of coverage identified above.

4. Such obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert owner or operator] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator]; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert owner or operator]. This exclusion applies:

(A) Whether [insert owner or operator] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert owner or operator];

(2) Premises that are sold, given away, or abandoned by [insert owner or operator] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert owner or operator];

(4) Personal property in the care, custody, or control of [insert owner or operator];

(5) That particular part of real property on which [insert owner or operator] or any contractors or subcontractors working directly or indirectly on behalf of [insert owner or operator] are performing operations, if the property damage arises out of these operations.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within ninety days, by certified mail, notice to the ~~department~~ DEPARTMENT and to [owner or operator] that he intends to provide alternate liability coverage as specified in section 33-24-05-79, as applicable, in the name of [owner or operator]. Within one hundred twenty days after the end of such fiscal year, the guarantor shall establish such liability coverage unless [owner or operator] has done so.

6. The guarantor agrees to notify the ~~department~~ DEPARTMENT by certified mail of a voluntary or involuntary proceeding under title 11 (Bankruptcy), United States Code, naming guarantor as debtor, within ten days after commencement of the proceeding.

7. Guarantor agrees that within thirty days after being notified by a ~~department~~ DEPARTMENT of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor, he shall establish alternate liability coverage as specified in section 33-24-05-79 in the name of [owner or operator], unless [owner or

operator] has done so.

8. Guarantor reserves the right to modify this ~~agreement~~ AGREEMENT to take into account amendment or modification of the liability requirements set by section 33-24-05-79, provided that such modification shall become effective only if the ~~department~~ DEPARTMENT does not disapprove the modification within thirty days of receipt of notification of the modification.

9. Guarantor agrees to remain bound under this guarantee for so long as [owner or operator] must comply with the applicable requirements of section 33-24-05-79 for the above-listed facility(ies), except as provided in paragraph 10 of this ~~agreement~~ AGREEMENT.

10. [Insert the following language if the guarantor is (a) a direct or higher-tier corporate parent, or (b) a firm whose parent corporation is also the parent corporation of the owner or operator]:

Guarantor may terminate this guarantee by sending notice by certified mail to the ~~department~~ DEPARTMENT and to [owner or operator], provided that this guarantee may not be terminated unless and until [the owner or operator] obtains, and the ~~department~~ DEPARTMENT approve(s), alternate liability coverage complying with section 33-24-05-79.

[Insert the following language if the guarantor is a firm qualifying as a guarantor due to its "substantial business relationship" with the owner or operator]:

Guarantor may terminate this guarantee one hundred twenty days following receipt of notification, through certified mail, by the ~~department~~ DEPARTMENT and by [the owner or operator].

11. Guarantor hereby expressly waives notice of acceptance of this guarantee by any party.

12. Guarantor agrees that this guarantee is in addition to and does not affect any other responsibility or liability of the guarantor with respect to the covered facilities.

13. The guarantor shall satisfy a third-party liability claim only on receipt of one of the following documents:

(a) Certification from the principal and the third-party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert principal] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence

arising from operating [Principal's hazardous waste treatment, storage, or disposal facility should be paid in the amount of $____].

[Signatures]

Principal

(Notary) Date

[Signatures]

Claimant(s)

(Notary) Date

(b) A valid final court order establishing a judgment against the principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the principal's facility or group of facilities.

14. In the event of combination of this guarantee with another mechanism to meet liability requirements, this guarantee will be considered [insert "primary" or "excess"] coverage.

I hereby certify that the wording of the guarantee is identical to the wording specified in subdivision b of subsection 8 of section 33-24-05-81 as such regulations were constituted on the date shown immediately below.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness of notary:

9. A hazardous waste facility liability endorsement as required in section 33-24-05-79 must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

HAZARDOUS WASTE FACILITY LIABILITY ENDORSEMENT

1. This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering bodily injury and property damage in connection with the insured's obligation to demonstrate financial responsibility under North Dakota Administrative Code section 33-24-05-79. The coverage applies at [list identification number, name,

and address for each facility] for ["sudden accidental occurrences", "nonsudden accidental occurrences", or "sudden and nonsudden accidental occurrences"; if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences and which are insured for both]. The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the insurer's liability] exclusive of legal defense costs.

2. The insurance afforded with respect to such occurrences is subject to all of the terms and conditions of the policy; provided, however, that any provisions of the policy inconsistent with subsections (a)1 through (e)5 of this paragraph 2 are hereby amended to conform with subsections (a)1 through (e)5:

   (a) Bankruptcy or insolvency of the insured shall not relieve the insurer of its obligations under the policy to which this endorsement is attached.

   (b) The insurer is liable for the payment of amounts within any deductible applicable to this policy with a right of reimbursement by the insured for any such payment made by the insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in subsection 6 of North Dakota Administrative Code section 33-24-05-79.

   (c) When requested by the North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~ (~~department~~ DEPARTMENT), the insurer agrees to furnish to the ~~department~~ DEPARTMENT a signed duplicate original of the policy and all endorsements.

   (d) Cancellation of this endorsement, whether by the insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility will be effective only upon written notice and only after the expiration of sixty days after a copy of such written notice is received by the ~~department~~ DEPARTMENT.

   (e) Any other termination of this endorsement will be effective only upon written notice, and only after the expiration of thirty days after a copy of such written notice is received by the ~~department~~ DEPARTMENT, as evidenced by the return receipt.

   Attached to and forming part of policy number _____ issued by [name of insurer] herein called the insurer of [address of insurer] to [name of insured] of [address] this _____ day of _____, 19___. The effective date of said policy is _____ day of

_____, 19___.

I hereby certify that the wording of this endorsement is identical to the wording specified in subsection 6 of North Dakota Administrative Code section 33-24-05-81, as such rule was constituted on the date first above written, and that the insurer is licensed to transact the business of insurance in the state of North Dakota or eligible to provide insurance as an excess or surplus lines insurer in one or more states.

[Signature of authorized representative of insurer]

[Type name]

[Title], authorized representative of [name of insurer]

[Address of representative]

10. A certificate of liability insurance as required in section 33-24-05-79 must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. [Name of insurer, (the "insurer") of [address of insurer] hereby certifies that it has issued liability insurance covering bodily injury and property damage to [name of insured], (the "insured"), of [address of insured] in connection with the insured's obligation to demonstrate financial responsibility under North Dakota Administrative Code section 33-24-05-79. The coverage applies at [list identification number, name, and address for each facility] for [insert "sudden accidental occurrences", "nonsudden accidental occurrences", or "sudden and nonsudden accidental occurrences"; if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences and which are insured for both]. The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the insurer's liability], exclusive of legal defense costs. The coverage is provided under policy number _____, issued on [date] the effective date of said policy is [date].

2. The insurer further certifies the following with respect to the insurance described in paragraph 1:

   (a) Bankruptcy or insolvency of the insured shall not relieve the insurer of its obligations under the policy.

   (b) The insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the insurer. This

provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in subsection 6 of North Dakota Administrative Code section 33-24-05-79.

(c) When requested by the North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~ (~~department~~ DEPARTMENT), the insurer agrees to furnish to the ~~department~~ DEPARTMENT a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice, and only after the expiration of sixty days after a copy of such written notice is received by the ~~department~~ DEPARTMENT.

(e) Any other termination of the insurance will be effective only upon written notice, and only after the expiration of thirty days after a copy of such written notice is received by the ~~department~~ DEPARTMENT, as evidenced by the return receipt.

I hereby certify that the wording of this instrument is identical to the wording specified in subsection ~~7~~ 10 of North Dakota Administrative Code section 33-24-05-81, as such regulation was constituted on the date first above written, and that the insurer is licensed to transact the business of insurance, in the state of North Dakota or eligible to provide insurance as an excess or surplus lines insurer in one or more states.

[Signature of authorized representative of insurer]

[Type name]

[Title], authorized representative of [name of insurer]

[Address of representative]

11. A letter of credit, as specified in subsection 8 of section 33-24-05-79, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Irrevocable Standby Letter of Credit

Name and Address of Issuing Institution
North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. __ in the favor of ["any and all third-party liability claimants"

or insert name of ~~trustee~~ TRUSTEE of the standby trust fund], at the request and for the account of [owner or operator's name and address] for third-party liability awards or settlements up to [in words] United States dollars $___ per occurrence and the annual aggregate amount of [in words] United States dollars $_____, for sudden accidental occurrences and/or for third-party liability awards or settlements up to the amount of [in words] United States dollars $____ per occurrence, and the annual aggregate amount of [in words] United States dollars $____, for nonsudden accidental occurrences available upon presentation of a sight draft bearing reference to this letter of credit No.____, and [insert the following language if the letter of credit is being used without a standby trust fund: (1) a signed certificate reading as follows:

Certificate of Valid Claim

The undersigned, as parties [insert principal] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operations of [principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[__]. We hereby certify that the claim does not apply to any of the following:

(a) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal].

This exclusion applies:

(A) Whether [insert principal] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or

watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert principal];

(2) Premises that are sold, given away, or abandoned by [insert principal] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert principal];

(4) Personal property in the care, custody, or control of [insert principal];

(5) That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

[Signatures]

~~Grantor~~ GRANTOR

[Signatures]

Claimant(s)

or (2) a valid final court order establishing a judgment against the ~~grantor~~ GRANTOR for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the ~~grantor's~~ GRANTOR'S facility or group of facilities.

This letter of credit is effective as of [date] and shall expire on [date] [at least one year later], but such expiration date shall be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least one hundred twenty days before the current expiration date, we notify you, the ~~department~~ DEPARTMENT, and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date.

When this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us.

[Insert the following language if a standby trust fund is not being used: "In the event that this letter of credit is used in combination with another mechanism for liability coverage, this letter of credit shall be considered [insert "primary" or "excess" coverage]".

We certify that the wording of this letter of credit is identical to the wording specified in subsection 11 of section 33-24-05-81 as such regulations were constituted on the date shown immediately below. [Signature(s) and title(s) of official(s) of issuing institution] [Date].

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits published and copyrighted by the International Chamber of Commerce" or "the Uniform Commercial Code"].

12. A surety bond, as specified in subsection ~~8~~ 9 of section 33-24-05-79, must be worded as follows: except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

PAYMENT BOND

Surety Bond No. [Insert number]

Parties [Insert name and address of owner or operator], principal, incorporated in [Insert state of incorporation] of [Insert city and state of principal place of business] and [Insert name and address of surety company(ies)], surety company(ies), of [Insert surety(ies) place of business].

State/environmental protection agency identification number, name, and address or each facility guaranteed by this bond:

	Sudden Accidental Occurrences	Nonsudden Accidental Occurrences
Penal Sum Per Occurrence	[insert amount]	[insert amount]
Annual Aggregate	[insert amount]	[insert amount]

Purpose: This is an ~~agreement~~ AGREEMENT between the surety(ies) and the principal under which the surety(ies), its(their) successors and assignees, agree to be responsible for the payment of claims against the principal for bodily injury and/or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental occurrences arising from operations of the facility or group of facilities in the sums prescribed herein; subject to the governing provisions and the following conditions.

Governing Provisions:

(1) Section 3004 of the Resource Conservation and Recovery Act of 1976, as amended.

(2) Rules and regulations of the United States environmental protection agency (EPA), particularly 40 CFR [" 264.147" or " 265.147"] (if applicable).

(3) Rules and regulations of the governing state agency, particularly section 33-24-05-79 and subsection 5 of section 33-24-06-16 of the North Dakota Administrative Code (if applicable) [insert citation].

Conditions:

(1) The principal is subject to the applicable governing provisions that

require the principal to have and maintain liability coverage for bodily injury and property damage to third parties caused by ["sudden" and/or "nonsudden" accidental occurrences arising from operations of the facility or group of facilities. Such obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or similar law.

(c) Bodily injury to:

(1) An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal]. This exclusion applies:

(A) Whether [insert principal] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert principal];

(2) Premises that are sold, given away, or abandoned by [insert principal] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert principal];

(4) Personal property in the care, custody or control of [insert principal];

(5) That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

(2) This bond assures that the principal will satisfy valid third-party liability claims, as described in condition 1.

(3) If the principal fails to satisfy a valid third-party liability claim, as described above, the surety(ies) becomes liable on this bond obligation.

(4) The surety(ies) shall satisfy a third-party liability claim only upon the receipt of one of the following documents:

(a) Certification from the principal and the third-party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

CERTIFICATION OF VALID CLAIM

The undersigned, as parties [insert name of principal] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[_____].

[Signature]
Principal
[Notary] Date

[Signature(s)]
Claimant(s)
[Notary] Date

or (b) A valid final court order establishing a judgment against the principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the principal's facility or group of facilities.

(5) In the event of combination of this bond with another mechanism for liability coverage, this bond will be considered [insert "primary" or "excess"] coverage.

(6) The liability of the surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond. In no event shall the obligation of the surety(ies) hereunder exceed the amount of said annual aggregate penal sum, provided that the surety(ies) furnish(es) notice to the ~~department~~ DEPARTMENT forthwith of all claims filed and payments made by the surety(ies) under this bond.

(7) The surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the principal and the ~~department~~ DEPARTMENT

provided, however, the cancellation shall not occur during the one hundred twenty days beginning on the date of receipt of the notice of cancellation by the principal and the ~~department~~ DEPARTMENT, as evidenced by the return receipt.

(8) The principal may terminate this bond by sending written notice to the surety(ies) and to the ~~department~~ DEPARTMENT.

(9) The surety(ies) hereby waive(s) notification of amendments to applicable laws, statutes, rules, and regulations and agree(s) that no such amendment shall in any way alleviate its (their) obligation on this bond.

(10) This bond is effective from [insert date] [12:01 a.m., standard time, at the address of the principal as stated herein] and shall continue in force until terminated as described above.

In Witness Whereof, the principal and surety(ies) have executed this bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the principal and surety(ies) and that the wording of this surety bond is identical to the wording specified in ~~40 CFR 264.151(1),~~ subsection 12 of section 33-24-05-81, as such regulations were constituted on the date this bond was executed.

PRINCIPAL

[Signature(s)]
[Name(s)]
[Title(s)]
[Corporate seal]

CORPORATE SURETY(IES)

[Name and address]
State of incorporation: _____
Liability limit: $_____
[Signature(s)]
[Name(s) and title(s)]
[Corporate seal]
[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for surety above.]
Bond premium: $_____

13. ~~Trust agreement~~ TRUST AGREEMENT

~~a. A trust agreement, as specified in subsection 10 of section 33-24-05-79, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:~~

a. A TRUST AGREEMENT, as specified in subsection 10 of section 33-24-05-79,

must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

TRUST AGREEMENT

~~Trust agreement~~ TRUST AGREEMENT, the "~~agreement~~ AGREEMENT," entered into as of [date] by and between [name of the owner or operator] a [name of state] [insert "corporation", "partnership", "association", or "proprietorship"], the "~~grantor~~ GRANTOR", and [name of corporate ~~trustee~~ TRUSTEE], [insert, "incorporated in the state of _____" or "a national bank"], the "~~trustee~~ TRUSTEE".

Whereas, the ~~department~~ DEPARTMENT has established certain regulations applicable to the ~~grantor~~ GRANTOR, requiring that an owner or operator of a hazardous waste management facility or group of facilities must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental and/or nonsudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the ~~grantor~~ GRANTOR has elected to establish a trust to assure all or part of such financial responsibility for the facilities identified herein.

Whereas, the ~~grantor~~ GRANTOR, acting through its duly authorized officers, has selected the ~~trustee~~ TRUSTEE to be the ~~trustee~~ TRUSTEE under this ~~agreement~~ AGREEMENT, and the ~~trustee~~ TRUSTEE is willing to act as ~~trustee~~ TRUSTEE.

Now, therefore, the ~~grantor~~ GRANTOR and the ~~trustee~~ TRUSTEE agree as follows:

Section 1. Definitions. As used in this ~~agreement~~ AGREEMENT:

(a) The term "~~grantor~~ GRANTOR" means the owner or operator who enters into this ~~agreement~~ AGREEMENT and any successors or assigns of the ~~grantor~~ GRANTOR.

(b) The term "~~trustee~~ TRUSTEE" means the ~~trustee~~ TRUSTEE who enters into this ~~agreement~~ AGREEMENT and any successor ~~trustee~~ TRUSTEE.

~~Section 2. Identification of Facilities.~~ **Section 2. Identification of Facilities.** This ~~agreement~~ AGREEMENT pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the environmental protection agency identification number, name, and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this ~~agreement~~ AGREEMENT].

Section 3. Establishment of ~~fund~~ FUND. The ~~grantor~~ GRANTOR and the TRUSTEE hereby establish a trust fund, hereinafter the "~~fund~~ FUND", for the benefit of any and all third parties injured or accidental occurrences arising

from operation of the facility(ies) covered by this guarantee, in the amount of _____ [up to $1 million] per occurrence and _____ [up to $2 million] annual aggregate for sudden accidental occurrences and _____ [up to $3 million] per occurrence and _____ [up to $6 million] annual aggregate for nonsudden occurrences, except that the ~~fund~~ FUND is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert ~~grantor~~ GRANTOR] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert ~~grantor~~ GRANTOR] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert ~~grantor~~ GRANTOR] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert ~~grantor~~ GRANTOR] arising from, and in the course of, employment by [insert ~~grantor~~ GRANTOR]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert ~~grantor~~ GRANTOR].

This exclusion applies:

(A) Whether [insert ~~grantor~~ GRANTOR] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or abandoned by [insert ~~grantor~~ GRANTOR];

(2) Premises that are sold, given away, or abandoned by [insert ~~grantor~~ GRANTOR] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert ~~grantor~~ GRANTOR];

(4) Personal property in the care, custody, or control of [insert ~~grantor~~ GRANTOR];

(5) That particular part of real property on which [insert ~~grantor~~ GRANTOR] or any contractors or subcontractors working directly or indirectly on behalf of [insert ~~grantor~~ GRANTOR] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the ~~fund~~ FUND shall be considered [insert "primary" or "excess"] coverage.

The ~~fund~~ FUND is established initially as consisting of the property, which is acceptable to the ~~trustee~~ TRUSTEE, described in schedule B attached hereto. Such property and any other property subsequently transferred to the ~~trustee~~ TRUSTEE is referred to as the ~~fund~~ FUND, together with all earnings and profits thereon, less any payments or distributions made by the ~~trustee~~ TRUSTEE pursuant to this ~~agreement~~ AGREEMENT. The ~~fund~~ FUND shall be held by the ~~trustee~~ TRUSTEE, IN TRUST, as hereinafter provided. The ~~trustee~~ TRUSTEE shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the ~~grantor~~ GRANTOR, any payments necessary to discharge any liabilities of the ~~grantor~~ GRANTOR established by the ~~department~~ DEPARTMENT.

Section 4. Payment for Bodily Injury or Property Damage. The ~~trustee~~ TRUSTEE shall satisfy a third-party liability claim by making payments from the ~~fund~~ FUND only upon receipt of one of the following documents:

(a) Certification from the ~~grantor~~ GRANTOR and the third-party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

CERTIFICATION OF VALID CLAIM

The undersigned, as parties [insert ~~grantor~~ GRANTOR] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [~~grantor's~~ GRANTOR'S] hazardous waste treatment, storage or disposal facility should be paid in the amount of $[_____].

[Signatures]
~~Grantor~~ GRANTOR

[Signatures]
Claimant(s)

(b) A valid final court order establishing a judgment against the ~~grantor~~ GRANTOR for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the ~~grantor's~~ GRANTOR'S facility or group of facilities.

~~Section 5. Payments Comprising the Fund.~~ **Section 5. Payments**

Comprising the FUND. Payments made to the ~~trustee~~ TRUSTEE for the ~~fund~~ FUND shall consist of cash or securities acceptable to the ~~trustee~~ TRUSTEE.

~~Section 6. Trustee Management.~~ **Section 6. TRUSTEE Management.** The ~~trustee~~ TRUSTEE shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the ~~grantor~~ GRANTOR may communicate in writing to the ~~trustee~~ TRUSTEE from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the ~~fund~~ FUND, the ~~trustee~~ TRUSTEE shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstance then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the ~~grantor~~ GRANTOR, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2.(a), shall not be acquired or held unless they are securities or other obligations of the federal or a state government;

(ii) The ~~trustee~~ TRUSTEE is authorized to invest the ~~fund~~ FUND in time or demand deposits of the ~~trustee~~ TRUSTEE, to the extent insured by an agency of the federal or state government; and

(iii) The ~~trustee~~ TRUSTEE is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

~~Section 7. Commingling and Investment.~~ **Section 7. Commingling and Investment.** The ~~trustee~~ TRUSTEE is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the ~~fund~~ FUND to any common commingled, or collective trust fund created by the ~~trustee~~ TRUSTEE in which the ~~fund~~ FUND is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 81a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the ~~trustee~~ TRUSTEE. The ~~trustee~~ TRUSTEE may vote such shares in its discretion.

~~Section 8. Express Powers of Trustee.~~ **Section 8. Express Powers of TRUSTEE.** Without in any way limiting the powers and discretions conferred upon the ~~trustee~~ TRUSTEE by the other provisions of this ~~agreement~~ AGREEMENT or by law, the ~~trustee~~ TRUSTEE is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the

~~trustee~~ TRUSTEE shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the ~~fund~~ FUND in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the ~~trustee~~ TRUSTEE in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States government, or any agency or instrumentality thereof, with a federal reserve bank, but the books and records of the ~~trustee~~ TRUSTEE shall at all times show that all such securities are part of the ~~fund~~ FUND;

(d) To deposit any cash in the ~~fund~~ FUND in interest-bearing accounts maintained or savings certificates issued by the ~~trustee~~ TRUSTEE, in its separate corporate capacity, or in any other banking institution affiliated with the ~~trustee~~ TRUSTEE, to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the ~~fund~~ FUND.

~~Section 9. Taxes and Expenses.~~ **Section 9. Taxes and Expenses.** All taxes of any kind that may be assessed or levied against or in respect of the ~~fund~~ FUND and all brokerage commissions incurred by the ~~fund~~ FUND shall be paid from the ~~fund~~ FUND. All other expenses incurred by the ~~trustee~~ TRUSTEE in connection with the administration of this trust, including fees for legal services rendered to the ~~trustee~~ TRUSTEE, the compensation of the ~~trustee~~ TRUSTEE to the extent not paid directly by the ~~grantor~~ GRANTOR, and all other proper charges and disbursements of the ~~trustee~~ TRUSTEE shall be paid from the ~~fund~~ FUND.

~~Section 10. Annual Valuations.~~ **Section 10. Annual Valuations.** The ~~trustee~~ TRUSTEE shall annually, at least thirty days prior to the anniversary date of establishment of the ~~fund~~ FUND, furnish to the ~~grantor~~ GRANTOR and to the ~~department~~ DEPARTMENT a statement confirming the value of the trust. Any securities in the ~~fund~~ FUND shall be valued at market value as of no more than sixty days prior to the anniversary date of establishment of the ~~fund~~ FUND. The failure of the ~~grantor~~ GRANTOR to object in writing to the ~~trustee~~ TRUSTEE within ninety days after the statement has been furnished to the ~~grantor~~ GRANTOR and the ~~department~~ DEPARTMENT shall constitute a conclusively binding assent by the ~~grantor~~ GRANTOR barring the ~~grantor~~ GRANTOR from asserting any claim or liability against the ~~trustee~~ TRUSTEE with respect to matters

disclosed in the statement.

~~Section 11. Advice of Counsel.~~ **Section 11. Advice of Counsel.** The ~~trustee~~ TRUSTEE may from time to time consult with counsel, who may be counsel to the ~~grantor~~ GRANTOR with respect to any question arising as to the construction of this ~~agreement~~ AGREEMENT or any action to be taken hereunder. The ~~trustee~~ TRUSTEE shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

~~Section 12. Trustee Compensation.~~ **Section 12. TRUSTEE Compensation.** The ~~trustee~~ TRUSTEE shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the ~~grantor~~ GRANTOR.

~~Section 13. Successor Trustee.~~ **Section 13. Successor TRUSTEE.** The ~~trustee~~ TRUSTEE may resign or the ~~grantor~~ GRANTOR may replace the ~~trustee~~ TRUSTEE, but such resignation or replacement shall not be effective until the ~~grantor~~ GRANTOR has appointed a successor ~~trustee~~ TRUSTEE and this successor accepts the appointment. The successor ~~trustee~~ TRUSTEE shall have the same powers and duties as those conferred upon the ~~trustee~~ TRUSTEE hereunder. Upon the successor ~~trustee's~~ TRUSTEE'S acceptance of the appointment, the ~~trustee~~ TRUSTEE shall assign, transfer, and pay over to the successor ~~trustee~~ TRUSTEE the funds and properties then constituting the ~~fund~~ FUND. If for any reason the ~~grantor~~ GRANTOR cannot or does not act in the event of the resignation of the ~~trustee~~ TRUSTEE, the ~~trustee~~ TRUSTEE may apply to a court of competent jurisdiction for the appointment of a successor ~~trustee~~ TRUSTEE or for instructions. The successor ~~trustee~~ TRUSTEE shall specify the date on which it assumes administration of the trust in a writing sent to the ~~grantor~~ GRANTOR, the ~~department~~ DEPARTMENT, and the present ~~trustee~~ TRUSTEE by certified mail ten days before such change becomes effective. Any expenses incurred by the ~~trustee~~ TRUSTEE as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

~~Section 14. Instructions to the Trustee.~~ **Section 14. Instructions to the TRUSTEE.** All orders, requests, and instructions by the ~~grantor~~ GRANTOR to the ~~trustee~~ TRUSTEE shall be in writing, signed by such persons as are designated in the attached exhibit A or such other designees as the ~~grantor~~ GRANTOR may designate by amendments to exhibit A. The ~~trustee~~ TRUSTEE shall be fully protected in acting without inquiry in accordance with the ~~grantor's~~ GRANTOR'S orders, requests, and instructions. All orders, requests, and instructions by the ~~department~~ DEPARTMENT to the ~~trustee~~ TRUSTEE shall be in writing, signed by the ~~department~~ DEPARTMENT, or its designees, and the ~~trustee~~ TRUSTEE shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The ~~trustee~~ TRUSTEE shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the ~~grantor~~ GRANTOR or ~~department~~ DEPARTMENT hereunder has occurred. The ~~trustee~~ TRUSTEE shall have no duty to act in the absence of such orders, requests, and instructions from the ~~grantor~~ GRANTOR and/or environmental protection agency, except as provided for herein.

~~Section 15. Notice of Nonpayment.~~ **Section 15. Notice of Nonpayment.**

If a payment for bodily injury or property damage is made under Section 4 of this trust, the ~~trustee~~ TRUSTEE shall notify the ~~grantor~~ GRANTOR of such payment and the amount(s) thereof within five working days. The ~~grantor~~ GRANTOR shall, on or before the anniversary date of the establishment of the ~~fund~~ FUND following such notice, either make payments to the ~~trustee~~ TRUSTEE in amounts sufficient to cause the trust to return to its value immediately prior to the payment of claims under Section 4, or shall provide written proof to the ~~trustee~~ TRUSTEE that other financial assurance for liability coverage has been obtained equaling the amount necessary to return the trust to its value prior to the payment of claims. If the ~~grantor~~ GRANTOR does not either make payments to the ~~trustee~~ TRUSTEE or provide the ~~trustee~~ TRUSTEE with such proof, the ~~trustee~~ TRUSTEE shall within ten working days after the anniversary date of the establishment of the ~~fund~~ FUND provide a written notice of nonpayment to the ~~department~~ DEPARTMENT.

~~Section 16. Amendment of Agreement.~~ **Section 16. Amendment of AGREEMENT.** This ~~agreement~~ AGREEMENT may be amended by an instrument in writing executed by the ~~grantor~~ GRANTOR, the ~~trustee~~ TRUSTEE, and the appropriate ~~department~~ DEPARTMENT administrator if the ~~grantor~~ GRANTOR ceases to exist.

~~Section 17. Irrevocability and Termination.~~ **Section 17. Irrevocability and Termination.** Subject to the right of the parties to amend this ~~agreement~~ AGREEMENT as provided in Section 16, this trust shall be irrevocable and shall continue until terminated at the written ~~agreement~~ AGREEMENT of the ~~grantor~~ GRANTOR, the ~~trustee~~ TRUSTEE, and the ~~department~~ DEPARTMENT, or by the ~~trustee~~ TRUSTEE, and the ~~department~~ DEPARTMENT, if the ~~grantor~~ GRANTOR ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be delivered to the ~~grantor~~ GRANTOR.

The ~~department~~ DEPARTMENT will agree to termination of the trust when the owner or operator substitutes alternate financial assurance as specified in this section.

~~Section 18. Immunity and Indemnification.~~ **Section 18. Immunity and Indemnification.** The ~~trustee~~ TRUSTEE shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the ~~grantor~~ GRANTOR or the ~~department~~ DEPARTMENT issued in accordance with this ~~agreement~~ AGREEMENT. The ~~trustee~~ TRUSTEE shall be indemnified and saved harmless by the ~~grantor~~ GRANTOR or from the trust fund, or both, from and against any personal liability to which the ~~trustee~~ TRUSTEE may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the ~~grantor~~ GRANTOR fails to provide such defense.

~~Section 19. Choice of Law.~~ **Section 19. Choice of Law.** This ~~agreement~~ AGREEMENT shall be administered, construed, and enforced according to the laws of the state of [enter name of state].

~~Section 20. Interpretation.~~ **Section 20. Interpretation.** As used in this ~~agreement~~ AGREEMENT, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this ~~agreement~~ AGREEMENT shall not affect the interpretation or the legal efficacy of this ~~agreement~~ AGREEMENT.

In Witness Whereof the parties have caused this ~~agreement~~ AGREEMENT to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as to the date first above written. The parties below certify that the wording of this ~~agreement~~ AGREEMENT is identical to the wording specified in ~~40 CFR 264.151(m)~~ subsection 13 of section 33-24-05-81, as such regulations were constituted on the date first above written.

[Signature of ~~grantor~~ GRANTOR]
[Title]

Attest:

[Title]
[Seal]

[Signature of ~~trustee~~ TRUSTEE]

Attest:

[Title]
[Seal]

~~(2) The following is an example of the certification of acknowledgment which must accompany the trust agreement for a trust fund as specified in subsection _____ or _____ of this chapter. State requirements may differ on the proper content of this acknowledgment.~~

b. The following is an example of the certification of acknowledgment which must accompany the TRUST AGREEMENT for a trust fund as specified in subsection 10 of section 33-24-05-79. State requirements may differ on the proper content of this acknowledgment.

State of _____
County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of notary public]

14. Standby ~~trust agreement~~ TRUST AGREEMENT

~~a. A standby trust agreement, as specified in subsection 8 of section 33-24-05-79, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:~~

a. A standby TRUST AGREEMENT, as specified in subsection 8 of section 33-24-05-79, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Standby ~~Trust Agreement~~ TRUST AGREEMENT

~~Trust agreement~~ TRUST AGREEMENT, the "~~agreement~~ AGREEMENT", entered into as of [date] by and between [name of the owner or operator] a [name of a state] [insert "corporation", "partnership", "association", or "proprietorship"], the "~~grantor~~ GRANTOR," and [name of corporate ~~trustee~~ TRUSTEE], [insert, "incorporated in the state of " or "a national bank"], the "~~trustee~~ TRUSTEE".

Whereas the North Dakota ~~State~~ Department of Health ~~and Consolidated Laboratories~~ has established certain regulations applicable to the ~~grantor~~ GRANTOR, requiring that an owner or operator of a hazardous waste management facility or group of facilities must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental and/or nonsudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the ~~grantor~~ GRANTOR has elected to establish a standby trust into which the proceeds from a letter of credit may be deposited to assure all or part of such financial responsibility for the facilities identified herein.

Whereas, the ~~grantor~~ GRANTOR, acting through its duly authorized officers, has selected the ~~trustee~~ TRUSTEE to be the ~~trustee~~ TRUSTEE under this ~~agreement~~ AGREEMENT, and the ~~trustee~~ TRUSTEE is willing to act as ~~trustee~~ TRUSTEE.

Now, therefore, the ~~grantor~~ GRANTOR and the ~~trustee~~ TRUSTEE agree as follows:

~~Section 1. Definitions.~~ **Section 1. Definitions.** As used in this ~~agreement~~ AGREEMENT:

(a) The term "~~grantor~~ GRANTOR" means the owner or operator who enters into this ~~agreement~~ AGREEMENT and any successors or assigns of the ~~grantor~~ GRANTOR.

(b) The term "~~trustee~~ TRUSTEE" means the ~~trustee~~ TRUSTEE who enters into this ~~agreement~~ AGREEMENT and any successor ~~trustee~~ TRUSTEE.

~~Section 2. Identification of Facilities.~~ **Section 2. Identification of Facilities.** This ~~agreement~~ AGREEMENT pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the

environmental protection agency identification number, name, and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this ~~agreement~~ AGREEMENT].

~~Section 3. Establishment of Fund.~~ **Section 3. Establishment of FUND.** The ~~grantor~~ GRANTOR and the ~~trustee~~ TRUSTEE hereby establish a standby trust fund, hereafter the "~~fund~~ FUND", for the benefit of any and all third parties injured or damaged by [sudden and/or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee, in the amounts of [up to $1 million] per occurrence and [up to $2 million] annual aggregate for sudden accidental occurrences and [up to $3 million] per occurrence and [up to $6 million] annual aggregate for nonsudden occurrences, except that the ~~fund~~ FUND is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert ~~grantor~~ GRANTOR] is obligated to pay damages by reason of the assumption of liability in a contract or ~~agreement~~ AGREEMENT. This exclusion does not apply to liability for damages that [insert ~~Grantor~~ GRANTOR] would be obligated to pay in the absence of the contract or ~~agreement~~ AGREEMENT.

(b) Any obligation of [insert ~~grantor~~ GRANTOR] under a workers' compensation, disability benefits, or unemployment compensation law, or any similar law.

(c) Bodily injury to:

(1) An employee or [insert ~~grantor~~ GRANTOR] arising from, and in the course of, employment by [insert ~~grantor~~ GRANTOR]; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert ~~Grantor~~ GRANTOR].

This exclusion applies:

(A) Whether [insert ~~grantor~~ GRANTOR] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert ~~grantor~~ GRANTOR];

(2) Premises that are sold, given away, or abandoned by [insert ~~grantor~~ GRANTOR] if the property damage arises out of any part of those premises;

(3) Property loaned [insert ~~grantor~~ GRANTOR];

(4) Personal property in the care, custody, or control of [insert ~~grantor~~ GRANTOR];

(5) That particular part of real property on which [insert ~~grantor~~ GRANTOR] or any contractors or subcontractors working directly or indirectly on behalf of [insert ~~grantor~~ GRANTOR] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the ~~fund~~ FUND shall be considered [insert "primary" or "excess"] coverage.

The ~~fund~~ FUND is established initially as consisting of the proceeds of the letter of credit deposited into the ~~fund~~ FUND. Such proceeds and any other property subsequently transferred to the ~~trustee~~ TRUSTEE is referred to as the ~~fund~~ FUND, together with all earnings and profits thereon, less any payments or distributions made by the ~~trustee~~ TRUSTEE pursuant to this ~~agreement~~ AGREEMENT. The ~~fund~~ FUND shall be held by the ~~trustee~~ TRUSTEE, IN TRUST, as hereinafter provided. The ~~trustee~~ TRUSTEE shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the ~~grantor~~ GRANTOR, any payments necessary to discharge any liabilities of the ~~grantor~~ GRANTOR established by the ~~department~~ DEPARTMENT.

~~Section 4. Payment for Bodily Injury or Property Damage.~~ **Section 4. Payment for Bodily Injury or Property Damage.** The ~~trustee~~ TRUSTEE shall satisfy a third-party liability claim by drawing on the letter of credit described in schedule B and by making payments from the ~~fund~~ FUND only upon receipt of one of the following documents:

(a) Certification from the ~~grantor~~ GRANTOR and the third-party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert ~~grantor~~ GRANTOR] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [~~grantor's~~ GRANTOR'S] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[ ].

[Signature]

~~Grantor~~ GRANTOR

[Signatures]

Claimant(s)

(b) A valid final court order establishing a judgment against the ~~grantor~~ GRANTOR for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the ~~grantor's~~ GRANTOR'S facility or group of facilities.

~~Section 5. Payments Comprising the Fund.~~ **Section 5. Payments Comprising the FUND.** Payments made to the ~~trustee~~ TRUSTEE for the ~~fund~~ FUND shall consist of the proceeds from the letter of credit drawn upon by the ~~trustee~~ TRUSTEE in accordance with the requirements of subsection 11 of section 33-24-05-81 and Section 4 of this ~~agreement~~ AGREEMENT.

~~Section 6. Trustee Management.~~ **Section 6. TRUSTEE Management.** The ~~trustee~~ TRUSTEE shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the ~~grantor~~ GRANTOR may communicate in writing to the ~~trustee~~ TRUSTEE from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the ~~fund~~ FUND, the ~~trustee~~ TRUSTEE shall discharge his duties with respect to the trust ~~fund~~ FUND solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the ~~grantor~~ GRANTOR, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), shall not be acquired or held, unless they are securities or other obligations of the federal or a state government;

(ii) The ~~trustee~~ TRUSTEE is authorized to invest the ~~fund~~ FUND in time or demand deposits of the ~~trustee~~ TRUSTEE, to the extent insured by an agency of the federal or a state government; and

(iii) The ~~trustee~~ TRUSTEE is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

~~Section 7. Commingling and Investment.~~ **Section 7. Commingling and Investment.** The ~~trustee~~ TRUSTEE is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the ~~fund~~ FUND to any common, commingled, or collective trust fund created by the ~~trustee~~ TRUSTEE in which the ~~fund~~ FUND is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is

rendered or the shares of which are sold by the ~~trustee~~ TRUSTEE. The ~~trustee~~ TRUSTEE may vote such shares in its discretion.

~~Section 8. Express Powers of Trustee.~~ **Section 8. Express Powers of TRUSTEE.** Without in any way limiting the powers and discretions conferred upon the ~~trustee~~ TRUSTEE by other provisions of this ~~agreement~~ AGREEMENT or by law, the ~~trustee~~ TRUSTEE is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the ~~trustee~~ TRUSTEE shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the ~~fund~~ FUND in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the ~~trustee~~ TRUSTEE in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States government, or any agency or instrumentality thereof, with a federal reserve bank, but the books and records of the ~~trustee~~ TRUSTEE shall at all times show that all such securities are part of the ~~fund~~ FUND;

(d) To deposit any cash in the ~~fund~~ FUND in interest-bearing accounts maintained or savings certificates issued by the ~~trustee~~ TRUSTEE, in its separate corporate capacity, or in any other banking institution affiliated with the ~~trustee~~ TRUSTEE, to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the ~~fund~~ FUND.

~~Section 9. Taxes and Expenses.~~ **Section 9. Taxes and Expenses.** All taxes of any kind that may be assessed or levied against or in respect of the ~~fund~~ FUND and all brokerage commissions incurred by the ~~fund~~ FUND shall be paid from the ~~fund~~ FUND. All other expenses incurred by the ~~trustee~~ TRUSTEE in connection with the administration of this trust, including fees for legal services rendered to the ~~trustee~~ TRUSTEE, the compensation of the ~~trustee~~ TRUSTEE to the extent not paid directly by the ~~grantor~~ GRANTOR, and all other proper charges and disbursements to the ~~trustee~~ TRUSTEE shall be paid from the ~~fund~~ FUND.

~~Section 10. Advice of Counsel.~~ **Section 10. Advice of Counsel.** The ~~trustee~~ TRUSTEE may from time to time consult with counsel, who may be counsel to the

~~grantor~~ GRANTOR, with respect to any question arising as to the construction of this ~~agreement~~ AGREEMENT or any action to be taken hereunder. The ~~Trustee~~ TRUSTEE shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

~~Section 11. Trustee Compensation.~~ **Section 11. TRUSTEE Compensation.** The ~~trustee~~ TRUSTEE shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the ~~grantor~~ GRANTOR.

~~Section 12. Successor Trustee.~~ **Section 12. Successor TRUSTEE.** The ~~trustee~~ TRUSTEE may resign or the ~~grantor~~ GRANTOR may replace the ~~trustee~~ TRUSTEE, but such resignation or replacement shall not be effective until the ~~grantor~~ GRANTOR has appointed a successor ~~trustee~~ TRUSTEE and this successor accepts the appointment. The successor ~~trustee~~ TRUSTEE shall have the same powers and duties as those conferred upon the ~~trustee~~ TRUSTEE hereunder. Upon the successor ~~trustee's~~ TRUSTEE acceptance of the appointment; the ~~trustee~~ TRUSTEE shall assign, transfer, and pay over to the successor ~~trustee~~ TRUSTEE the funds and properties then constituting the ~~fund~~ FUND. If for any reason the ~~grantor~~ GRANTOR cannot or does not act in the event of the resignation of the ~~trustee~~ TRUSTEE, the ~~trustee~~ TRUSTEE may apply to a court of competent jurisdiction for the appointment of a successor ~~trustee~~ TRUSTEE or for instructions. The successor ~~trustee~~ TRUSTEE shall specify the date on which it assumes administration of the trust in a writing sent to the ~~grantor~~ GRANTOR, the ~~department~~ DEPARTMENT and the present ~~trustee~~ TRUSTEE by certified mail ten days before such change becomes effective. Any expenses incurred by the ~~trustee~~ TRUSTEE as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

~~Section 13. Instructions to the Trustee.~~ **Section 13. Instructions to the TRUSTEE.** All orders, requests, certifications of valid claims, and instructions to the ~~trustee~~ TRUSTEE shall be in writing, signed by such persons as are designated in the attached exhibit A or such other designees as the ~~grantor~~ GRANTOR may designate by amendments to exhibit A. The ~~trustee~~ TRUSTEE shall be fully protected in acting without inquiry in accordance with the ~~grantor's~~ GRANTOR'S orders, requests, and instructions. The ~~trustee~~ TRUSTEE shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the ~~grantor~~ GRANTOR or the ~~department~~ DEPARTMENT hereunder has occurred. The ~~trustee~~ TRUSTEE shall have no duty to act in the absence of such orders, requests, and instructions from the ~~grantor~~ GRANTOR and/or the ~~department~~ DEPARTMENT, except as provided for herein.

Section 14. Amendment of Agreement. **Section 14. Amendment of AGREEMENT.** This ~~agreement~~ AGREEMENT may be amended by an instrument in writing executed by the ~~grantor~~ GRANTOR, the ~~trustee~~ TRUSTEE, and the ~~department~~ DEPARTMENT, or by the ~~trustee~~ TRUSTEE and the ~~department~~ DEPARTMENT if the ~~grantor~~ GRANTOR ceases to exist.

~~Section 15. Irrevocability and Termination.~~ **Section 15. Irrevocability and Termination.** Subject to the right of the parties to amend this ~~agreement~~

AGREEMENT as provided in Section 14, this trust shall be irrevocable and shall continue until terminated at the written ~~agreement~~ AGREEMENT of the ~~grantor~~ GRANTOR, the ~~trustee~~ TRUSTEE, and the ~~department~~ DEPARTMENT, or by the ~~trustee~~ TRUSTEE and the ~~department~~ DEPARTMENT, if the ~~grantor~~ GRANTOR ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be paid to the ~~grantor~~ GRANTOR.

The ~~department~~ DEPARTMENT will agree to termination of the trust when the owner or operator substitutes alternative financial assurance as specified in this section.

~~Section 16. Immunity and Indemnification.~~ **Section 16. Immunity and Indemnification.** The ~~trustee~~ TRUSTEE shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the ~~grantor~~ GRANTOR and the ~~department~~ DEPARTMENT issued in accordance with this ~~agreement~~ AGREEMENT. The ~~trustee~~ TRUSTEE shall be indemnified and saved harmless by the ~~grantor~~ GRANTOR or from the trust fund, or both, from and against any personal liability to which the ~~trustee~~ TRUSTEE may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the ~~grantor~~ GRANTOR fails to provide such defense.

~~Section 17. Choice of Law.~~ **Section 17. Choice of Law.** This ~~agreement~~ AGREEMENT shall be administered, construed, and enforced according to the laws of the state of [enter name of state].

~~Section 18. Interpretation.~~ **Section 18. Interpretation.** As used in this ~~agreement~~ AGREEMENT, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this ~~agreement~~ AGREEMENT shall not affect the interpretation of the legal efficacy of this ~~agreement~~ AGREEMENT.

In Witness Whereof the parties have caused this ~~agreement~~ AGREEMENT to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this ~~agreement~~ AGREEMENT is identical to the wording specified in subsection 14 of section 33-24-05-81 as such regulations were constituted on the date first above written.

[Signature of ~~grantor~~ GRANTOR]

[Title]

Attest:

[Title]

[Seal]

[Signature of ~~trustee~~ TRUSTEE]

Attest:

[Title]

[Seal]

~~(2) The following is an example of the certification of acknowledgement which must accompany the trust agreement for a standby trust fund as specified in subsection 8 of section 33-24-05-79. State requirements may differ on the proper content of this acknowledgment.~~

b. The following is an example of the certification of acknowledgement which must accompany the TRUST AGREEMENT for a standby trust fund as specified in subsection 8 of section 33-24-05-79. State requirements may differ on the proper content of this acknowledgment.

State of _____

County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of notary public]

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-82. [Reserved]

33-24-05-83. [Reserved]

33-24-05-84. [Reserved]

33-24-05-85. [Reserved]

33-24-05-86. [Reserved]

33-24-05-87. [Reserved]

33-24-05-88. [Reserved]

33-24-05-89. Applicability of requirements for use and management of containers. Sections 33-24-05-89 through 33-24-05-102 apply to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as section 33-24-05-01 provides otherwise.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-90. Condition of containers. If a container holding hazardous waste is not in good condition (~~e.g.,~~ for example, severe rusting, apparent structural defects) or if it begins to leak, the owner or operator shall transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirements of this chapter.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-91. Compatibility of waste with containers. The owner or operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-92. Management of containers.

1. A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

2. A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-93. Inspections. At least weekly, the owner or operator shall inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. A log book of these weekly inspections must be maintained.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-94. Containment.

1. Container storage areas must have a containment system that is designed and operated in accordance with subsection 2, except as provided otherwise in subsection 3.

2. The containment system must be designed and operated as follows:

   a. A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.

   b. The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.

   c. The containment system must have sufficient capacity to contain ten percent of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquid need not be considered in this determination.

   d. Run-on into the containment system must be prevented, unless the collection system has sufficient excess capacity in addition to that required in subdivision c to contain any run-on which might enter the system.

   e. Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.

3. Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined by subsection 2, except as provided by subsection 4 or provided that:

   a. The storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation; or

   b. The containers are elevated or are otherwise protected from contact with accumulated liquid.

4. Storage areas that store containers holding the wastes listed below that do not contain free liquids must have a containment system defined by subsection 2:

   a. F020, F021, F022, F023, F026, and F027.

   b. [Reserved]

History: Effective January 1, 1984; amended effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-95. Special requirements for ignitable or reactive wastes. Containers holding ignitable or reactive waste must be located at least fifteen meters (50 feet) from the facility's property line.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-96. Special requirements for incompatible wastes.

1. Incompatible wastes, or incompatible wastes and materials must not be placed in the same container, unless subsection 2 of section 33-24-05-08 is complied with.

2. Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.

3. A storage container holding a hazardous waste that is incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-97. Closure. At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-98. ~~[Reserved]~~ Air emission standards. The owner or operator shall manage all hazardous waste placed in a container in accordance with the requirements of sections 33-24-05-400 through 33-24-05-474.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-99. [Reserved]

33-24-05-100. [Reserved]

33-24-05-101. [Reserved]

33-24-05-102. [Reserved]

33-24-05-103. Applicability of tank requirements. The requirements of sections 33-24-05-103 through 33-24-05-114 apply to owners and operators of facilities that use tank systems for storing or treating hazardous waste except as otherwise provided in subsection 1, 2, and 3 or in section 33-24-05-01.

1. Tank systems that are used to treat or store hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the requirements in section 33-24-05-106. To demonstrate the absence or presence of free liquids in the stored/treated waste, ~~environmental protection agency method 9095 (paint filter liquids test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (environmental protection agency publication number SW-846) must be used.~~ the following test must be used: method 9095 (paint filter liquids test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, as incorporated by reference in section 33-24-01-05.

2. Tank systems, including sumps, as defined in section 33-24-01-04, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in subsection 1 of section 33-24-05-106.

3. Tanks, sumps, and other such collection devices or systems used in conjunction with drip pads, as defined in section 33-24-01-04 and regulated under sections 33-24-05-501 through 33-24-05-506, must meet the requirements~~.~~ of sections 33-24-05-103 through 33-24-05-117.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-104. Assessment of existing tank system's integrity.

1. For each existing tank system that does not have secondary containment meeting the requirements of section 33-24-05-106, the owner or operator shall determine that the tank system is not leaking or is unfit for use. Except as provided in subsection 3, the owner or operator shall obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified, registered professional engineer, in accordance with subsection 4 of section 33-24-06-03, that attests to the tank systems integrity by July 30, 1989.

2. This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the wastes to be stored or treated, to ensure that it will not collapse, rupture, or fail. At a minimum, the assessment must consist of the following:

   a. Design standards, if available, according to which the tank and ancillary equipment were constructed;

   b. Hazardous characteristics of the wastes that have been and will be handled;

   c. Existing corrosion protection measures;

   d. Documented age of the tank system if available (otherwise, an estimate of the age); and

   e. Results of a leak test, internal inspection, or other tank integrity examination such that:

      (1) For nonenterable underground tanks, the assessment must include a leak test that is capable of taking into account the effects of temperature variations, tank and deflection, vapor pockets, and high water table effects; and

      (2) For other than nonenterable underground tanks and for ancillary equipment, this assessment must include either a leak test, as described above, or other integrity examination that is certified by an independent, qualified, registered professional engineer in accordance with subsection 4 of section 33-24-06-03, that addresses cracks, leaks, corrosion, and erosion.

      [Note: The practices described in the american petroleum institute publication, guide for inspection of refinery equipment, chapter XIII, "Atmospheric and Low-Pressure Storage Tanks," fourth edition, 1981, may be used, where applicable, as guidelines in conducting other than a leak test.]

3. Tank systems that store or treat materials that become hazardous waste subsequent to July 14, 1986 must conduct this assessment within twelve months after the date that the waste becomes a hazardous waste.

4. If, as a result of the assessment conducted in accordance with subsection 1, a tank system is found to be leaking or unfit for use, the owner or operator shall comply with the requirements of section 33-24-05-109.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-105. Design and installation of new tank systems or components.

1. Owners or operators of new tanks systems or components shall obtain and submit to the department, at time of submittal of part b application information, a written assessment, reviewed and certified by an independent, qualified registered professional engineer, in accordance with subsection 4 of section 33-24-06-03, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the wastes to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the department to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

   a. Design standards according to which tanks and/or the ancillary equipment are constructed;

   b. Hazardous characteristics of the waste to be handled;

   c. For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

      (1) Factors affecting the potential for corrosion including, but not limited to:

         (a) Soil moisture content;

         (b) Soil pH;

         (c) Soil sulfides level;

         (d) Soil resistivity;

         (e) Structure to soil potential;

         (f) Influence of nearby underground metal structures (~~e.g.,~~ for example, piping);

         (g) Existence of stray electric current; and

         (h) Existing corrosion protecting measures (~~e.g.,~~ for example, coating, cathodic protection);

      (2) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

         (a) Corrosion-resistant materials of construction such as special

alloys, fiberglass reinforced plastic, etc.;

(b) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (~~e.g.,~~ for example, impressed current or sacrificial anodes);

(c) Electrical isolation devices such as insulating joints and flanges;

[Note: The practices described in the national association of corrosion engineers standard, "Recommended Practice (RP-02-85) Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems", and the American petroleum institute publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in providing corrosion protection for tank systems.]

(d) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

(e) Design considerations to ensure that:

[1] Tank foundations will maintain the load of a full tank;

[2] Tank systems will be anchored to prevent floatation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of subsection 1 of section 33-24-05-09; and

[3] Tank systems will withstand the effects of frost heave.

2. The owner or operator of a new tank system shall ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or component, shall inspect the system for the presence of any of the following items:

a. Weld breaks;

b. Punctures;

c. Scrapes of protective coating;

d. Cracks;

e. Corrosion; and

f. Other structural damage or inadequate construction or installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use.

3. New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is noncorrosive, porous, homogenous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

4. All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed into use. If a tank system is found not to be tight, all repairs necessary to remedy the leaks in the system must be performed prior to the tank system being covered, enclosed, or placed into use.

5. Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

[Note.- The piping system installation procedures described in American petroleum institute publication 1615 (November 1979), "Installation of Underground Petroleum Storage Systems", or American national standards institute standard B31.3 "Petroleum Refinery Piping" and American national standards institute standard B31.4, "Liquid Petroleum Transportation Piping System", may be used where applicable, as guidelines for proper installation of piping systems.]

6. The owner or operator shall provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on information provided under subdivision c of subsection 1 or other corrosion protection if the department believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. Installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.

7. The owner or operator shall obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of subsection 2 through 6, attesting that the tank system was properly designed and installed and that repairs, pursuant to subsection 2 and 4 were performed. These written statements must also include the certification statement as required in subsection 4 of section 33-24-06-03.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-106. Containment and detection of releases.

1. In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this section must be provided (except as provided in subsections 6 and 7):

   a. For all new tank systems or components, prior to being put into service;

   b. For all existing tank systems used to store or treat hazardous waste numbers F020, F021, F022, F023, F026, and F027 within one year after the effective date of these rules;

   c. For those existing tank systems of known documented age within one year after the effective date of these rules or when the tank system has reached fifteen years of age, whichever comes later;

   d. For those existing tank systems for which the age cannot be documented, within eight years of the effective date of these rules; but if the age of the facility is greater than seven years, secondary containment must be provided by the time the facility reaches fifteen years of age or within one year of the effective date of these rules, whichever comes later; and

   e. For tank systems that store or treat materials that become hazardous wastes subsequent to January 12, 1987 within the time intervals required in subdivisions a through d of subsection 1, except that the date a material becomes a hazardous waste must be used in place of January 12, 1987.

2. Secondary containment systems must be:

   a. Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, ground water, or surface water at any time during the use of the tank system; and

   b. Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

3. To meet the requirements of subsection 2, secondary containment systems must be at a minimum:

   a. Constructed of or lined with materials that are compatible with the wastes to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic);

   b. Placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement,

compression, or uplift;

c. Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within twenty-four hours, or at the earliest practicable time if the owner or operator can demonstrate to the department that the existing detection technologies or site conditions will not allow detection of a release within twenty-four hours; and

d. Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within twenty-four hours, or in as timely a manner as possible to prevent harm to human health and the environment, if the owner or operator can demonstrate to the department that removal of the released waste or accumulated precipitation cannot be accomplished within twenty-four hours. (Note: If the collected material is a hazardous waste under chapter 33-24-02, it is subject to management as a hazardous waste in accordance with all applicable requirements of chapters 33-24-03 through 33-24-05. If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of sections 301, 304, and 402 of the clean water act as amended. If discharged to a publicly owned treatment works it is subject to the requirements of section 307 of the Clean Water Act, as amended. If the collected material is released to the environment, it may be subject to the reporting requirements of 40 CFR 302.)

4. Secondary containment for tanks must include one or more of the following devices:

   a. A liner (external to the tank);

   b. A vault;

   c. A double-walled tank; or

   d. An equivalent device as approved by the department.

5. In addition to the requirements of subsections 2, 3, and 4, secondary containment systems must satisfy the following requirements:

   a. External liner systems must be:

      (1) Designed or operated to contain one hundred percent of the capacity of the largest tank within its boundary;

      (2) Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on

or infiltration. Such additional capacity must be sufficient to contain precipitation from a twenty-five year, twenty-four hour rainfall event;

(3) Free of cracks or gaps; and

(4) Designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tanks (~~i.e.,~~ for example, capable of preventing lateral as well as vertical migration of the waste).

b. Vault systems must be:

(1) Designed or operated to contain one hundred percent of the capacity of the largest tank within its boundary;

(2) Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a twenty-five year, twenty-four hour rainfall event;

(3) Constructed with chemical resistant water stops in place at all joints (if any);

(4) Provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the concrete;

(5) Provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being stored or treated:

(a) Meets the definition of ignitable wastes under section 33-24-02-11; or

(b) Meets the definition of reactive wastes under section 33-24-02-13, and may form an ignitable or explosive vapor; and

(6) Provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

c. Double-walled tanks must be:

(1) Designed as an integral structure ~~(i.e.,~~ for example, an inner tank completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell;

(2) Protected, if constructed of metal, from both corrosion of the

primary tank interior and of the external surface of the outer shell; and

(3) Provided with a built-in continuous leak detection system capable of detecting a release within twenty-four hours, or at the earliest practical time if the owner or operator can demonstrate to the department, and the department concludes, that the existing detection technology or site conditions would not allow detection with a release within twenty-four hours. (Note: The provisions outlined in the steel tank institute's "standard for dual wall underground steel storage tanks" may be used as guidelines for aspects of the design of underground steel double-walled tanks.)

6. Ancillary equipment must be provided with secondary containment (~~e.g.,~~ for example, trench, jacketing, double-walled piping) that meet the requirements of subsections 2 and 3 except for:

a. Aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis;

b. Welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis;

c. Sealless or magnetic coupling pumps, and sealless valves, that are visually inspected for leaks on a daily basis; and

d. Pressurized aboveground piping systems with automatic shutoff devices (~~e.g.,~~ for example, excess flow check valves, flow metering shutdown devices, loss of pressure actuated shutoff devices) that are visually inspected for leaks on a daily basis.

7. The owner or operator may obtain a variance from the requirements of this section if the department finds, as a result of a demonstration by the owner or operator that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous waste or hazardous constituent into the ground water; or surface water at least as effectively as secondary containment during the active life of the tank system or that in the event of a release that does migrate to ground water or surface water, no substantial present or potential hazard will be posed to human health or the environment. New underground tank systems may not, per a demonstration in accordance with subdivision b of subsection 7, be exempted from secondary containment requirements of this section.

a. In deciding whether to grant a variance based on a demonstration of equivalent protection of ground water and surface water, the department will consider:

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including the thickness of soils present between the tank system and ground water; and

(4) All other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to ground water or surface water.

b. In deciding whether to grant a variance based on a demonstration of no substantial present or potential hazard, the department will consider:

(1) The potential adverse effects on ground water, surface water, and land quality taking into account:

(a) The physical and chemical characteristics of the waste in the tank system, including its potential for migration;

(b) The hydrogeological characteristics of the facility and surrounding land;

(c) The potential for health risks caused by human exposure to waste constituents;

(d) The potential for damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(e) The persistence and permanence of potential adverse effects;

(2) The potential adverse effects of a release on ground water quality, taking into account:

(a) The quantity and quality of ground water and the direction of ground water flow;

(b) The proximity and withdrawal rates of ground water users;

(c) The current and future uses of ground water in the area; and

(d) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality;

(3) The potential adverse effects of a release on surface water quality, taking into account:

(a) The quantity and quality of ground water and the direction of ground water flow;

(b) The patterns of rainfall in the region;

(c) The proximity of the tank system to surface waters;

(d) The current and future uses of surface waters in the area and any water quality standards established for those surface waters; and

(e) The existing quality of surface water, including other sources of contamination and cumulative impact on surface water quality;

(4) The potential adverse effects of a release on the land surrounding the tank system, taking into account:

(a) The patterns of rainfall in the region; and

(b) The current and future uses of the surrounding land.

c. The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of subdivision a of subsection 7, at which a release of hazardous waste has occurred from the primary tank system, but has not migrated beyond the zone of engineering control (as established in the variance), must:

(1) Comply with the requirements of section 33-24-05-109, except subsection 4; and

(2) Decontaminate or remove contaminated soil to the extent necessary to:

(a) Enable the tank system for which the variance was granted to resume operation with the capability for the detection of releases at least equivalent to the capability it had prior to the release, and

(b) Prevent the migration of hazardous waste or hazardous constituents to ground water or surface water; and

(3) If contaminated soil cannot be removed or decontaminated in accordance with paragraph 2 of subdivision c of subsection 7, comply with the requirements of subsection 2 of section 33-24-05-110.

d. The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of subdivision a of subsection 7, at which a release of hazardous waste has occurred from the primary tank system and has migrated beyond the zone of engineering control (as established in the variance), shall:

(1) Comply with the requirements of subsections 1, 2, 3, and 4 of section 33-24-05-109;

(2) Prevent the migration of hazardous waste or hazardous constituents

to ground water or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be decontaminated or removed or if ground water has been contaminated, the owner or operator must comply with the requirements of subsection 2 of section 33-24-05-110; and

(3) If repairing, replacing, or reinstalling the tank system, provides secondary containment in accordance with the requirements of subsection 1 or reapply for a variance from the secondary containment and meet the requirements for new tank systems in section 33-24-05-105 if the tank system is replaced. The owner or operator must comply with these requirements even if contaminated soil can be decontaminated or removed and ground water or surface water has not been contaminated.

8. The following procedures must be followed in order to request a variance from secondary containment:

a. The department must be notified in writing by the owner or operator that the owner or operator intends to conduct and submit a demonstration for a variance from secondary containment as allowed in subsection 7 according to the following schedule:

(1) For existing tank systems, at least twenty-four months prior to the date that secondary containment must be provided in accordance with subsection 1; or

(2) For new tank systems, at least thirty days prior to entering into a contract for installation; and

b. As part of the notification, the owner or operator shall also submit to the department a description of the steps necessary to conduct the demonstration and a timetable for completing each of the steps. The demonstration must address each of the factors listed in subdivision a or b of subsection 7;

c. The demonstration for a variance must be completed within one hundred eighty days after notifying the department of an intent to conduct the demonstration; and

d. If a variance is granted under this section, the department will require the permittee to construct and operate the tank system in the manner that was demonstrated to meet the requirements for the variance.

9. All tank systems, until such time as secondary containment that meet the requirements of this section is provided, must comply with the following:

a. For nonenterable underground tanks, a leak test that meets the requirements of subdivision e of subsection 2 of section 33-24-05-104 or other tank integrity method, as approved or required by the department must be conducted at least annually;

b. For other than nonenterable underground tanks, the owner or operator shall either conduct a leak test as in subdivision a or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified registered professional engineer. The schedule and procedure must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks. The owner or operator shall remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed. The frequency of these assessments must be based on the material of construction of the tank and its ancillary equipment, the age of the system, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during the previous inspection, and the characteristics of the waste being stored or treated;

c. For ancillary equipment, a leak test for other integrity assessment as approved by the department must be conducted at least annually;

[Note: The practices described in the American petroleum institute publication guide for inspection of refinery equipment, chapter XIII, "Atmospheric and Low-Pressure Storage Tanks", fourth edition 1981, may be used, where applicable, as guidelines for assessing the overall condition of the tank system.]

d. The owner or operator shall maintain on file at the facility a record of the results of the assessments conducted in accordance with subdivisions a through c; and

e. If a tank system or component is found to be leaking or unfit for use as a result of the leak test or assessment in subdivisions a through c, the owner or operator shall comply with the requirements of section 33-24-05-109.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-107. General operating requirements.

1. Hazardous waste or treatment reagents must not be placed in a tank system if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

2. The owner or operator shall use appropriate controls and practices to prevent spills and overflows from tank or containment systems. These include at a minimum:

   a. Spill prevention controls (~~e.g.,~~ for example, check valves, dry disconnect couplings);

b. Overfill prevention controls (~~e.g.,~~ for example, level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and

c. Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.

3. The owner or operator shall comply with the requirements of section 33-24-05-109 if a leak or spill occurs in the tank system.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-108. Inspections.

1. The owner or operator shall develop and follow a schedule and procedure for inspecting overfill controls.

2. The owner or operator shall inspect at least once each operating day:

   a. Aboveground portions of the tank system, if any, to detect corrosion or releases of waste;

   b. Data gathered from monitoring and leak detection equipment (~~e.g.,~~ for example, pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design; and

   c. The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (~~e.g.,~~ for example, dikes) to detect erosion or signs of releases of hazardous waste (~~e.g.~~ for example, wet spots, dead vegetation).

   [Note: Subsection 3 of section 33-24-05-06 requires the owner or operator to remedy any deterioration or malfunction the owner or operator finds. Section 33-24-05-109 requires the owner or operator to notify the department within twenty-four hours of confirming a leak. Also, 40 CFR part 302 may require the owner or operator to notify the national response center of a release.]

3. The owner or operator must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:

   a. The proper operation of the cathodic protection system must be confirmed within six months after initial installation and annually thereafter; and

   b. All sources of impressed current must be inspected or tested, or both, as appropriate, at least bimonthly (~~i.e.,~~ for example, every other

month).

[Note: The practices described in the national association of corrosion engineers standard, "Recommended Practice P-028-85 Control of External Corrosion on Metallic, Buried, Partially Buried, or Submerged Liquid Storage Systems", and American petroleum institute publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems", may be used where applicable, as guidelines in maintaining and inspecting cathodic protection systems.]

4. The owner or operator shall document in the operating record of the facility an inspection of those items in subsections 1 through 3.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-109. Response to leaks or spills and disposition of leaking or unfit-for-use tank systems. A tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, must be removed from service immediately, and the owner or operator shall satisfy the following requirements:

1. Cessation of use; prevent flow or addition of wastes. The owner or operator shall immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.

2. Removal of waste from tank system or secondary containment system.

   a. If the release was from the tank system, the owner or operator shall, within twenty-four hours after detection of the leak or, if the owner or operator demonstrates that it is not possible, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed.

   b. If the material released was to a secondary containment system, all released materials must be removed within twenty-four hours or in as timely a manner as is possible to prevent harm to human health and the environment.

3. Containment of visible releases to the environment. The owner or operator shall immediately conduct a visual inspection of the release and, based upon that inspection:

   a. Prevent further migration of leak or spill to soils or surface water; and

   b. Remove, and properly dispose of, any visible contamination of the soil or surface water.

4. Notifications, reports.

   a. Any release to the environment, except as provided in subdivision b of subsection 4, must be reported to the department within twenty-four hours of its detection. The release should also be reported pursuant to 40 CFR 302.

   b. A leak or spill of hazardous waste is exempted from the requirements of this section if it is:

      (1) Less than or equal to a quantity of one pound, and

      (2) Immediately contained and cleaned up.

   c. Within thirty days of detection of a release to the environment, a report containing the following information must be submitted to the department:

      (1) Likely route of migration of the release;

      (2) Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);

      (3) Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within thirty days, these data must be submitted to the department as soon as they become available;

      (4) Proximity to downgradient drinking water, surface water, and populated areas; and

      (5) Description of response actions taken or planned.

5. Provision of secondary containment, repair, or closure.

   a. Unless the owner or operator satisfies the requirements of subdivisions b through d of subsection 5, the tank system must be closed in accordance with section 33-24-05-110.

   b. If the cause of the release was a spill that has not damaged the integrity of the system, the owner or operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made.

   c. If the cause of the release was a leak from the primary tank system into the secondary containment system, the system must be repaired prior to returning the tank system to service.

   d. If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the owner or operator shall provide the component of the system from which the leak occurred with secondary containment that satisfies the requirements of

section 33-24-05-106 before it can be returned to service unless the source of the leak is an aboveground portion of a leak system that can be inspected visually. If the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of subsection 6 are satisfied. If a component is replaced to comply with the requirements of this subdivision, that component must satisfy the requirements for new tank systems or components in sections 33-24-05-105 and 33-24-05-106. Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection, (~~e.g.,~~ for example, the bottom of an inground or onground tank), the entire component must be provided with secondary containment in accordance with section 33-24-05-106 prior to being returned to use.

6. Certification of major repairs. If the owner or operator has repaired a tank system in accordance with subsection 5, and the repair has been extensive (~~e.g.,~~ for example, installation of an internal liner; repair of a ruptured primary containment or secondary containment vessel), the tank system must not be returned to service unless the owner or operator has obtained a certification by an independent, qualified registered, professional engineer in accordance with subsection 4 of section 33-24-06-03 that the repaired system is capable of handling hazardous waste without release for the intended life of the system. This certification must be submitted to the department within seven days after returning the tank system to use.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-110. Closure and postclosure care.

1. At closure of a tank system, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as a hazardous waste, unless subsection 4 of section 33-24-02-03 applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in sections 33-24-05-59 through 33-24-05-88.

2. If the owner or operator demonstrates that not all contaminated soil can be practicably removed or decontaminated as required in subsection 1, then the owner or operator shall close the tank system and perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills under section 33-24-05-180. In addition, for the purposes of closure, postclosure, and financial responsibility, such a tank system is then considered to be a landfill, and the owner or operator shall meet all the requirements for landfills specified in sections 33-24-05-59 through 33-24-05-88.

3. If an owner or operator has a tank system that does not have secondary containment that meets the requirements of subsections 2 through 6 of section 33-24-05-106 and has not been granted a variance from the secondary containment requirements in accordance with subsection 7 of section 33-24-05-106, then:

   a. The closure plan for the tank system must include both a plan for complying with subsection 1 and a contingent plan for complying with subsection 2;

   b. A contingent postclosure plan for complying with subsection 2 must be prepared and submitted as part of the permit application;

   c. The cost estimates calculated for closure and postclosure care must reflect the cost of complying with the contingent closure plan and the contingent postclosure plan, if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under subsection 1;

   d. Financial assurance must be based on the cost estimates in subdivision c of subsection 3; and

   e. For the purposes of the contingent closure and postclosure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, postclosure, and financial responsibility requirements for landfills under sections 33-24-05-59 through 33-24-05-88.

History: Effective October 1, 1986; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-111. Special requirements for ignitable or reactive waste.

1. Ignitable or reactive wastes may not be placed in tank systems, unless:

   a. The waste is treated, rendered, or mixed before or immediately after placement in the tank systems so that:

      (1) The resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive wastes under sections 33-24-02-11 or 33-24-02-13, and

      (2) Subsection 2 of section 33-24-05-08 is complied with;

   b. The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the wastes to ignite or react; or

   c. The tank system is used solely for emergencies.

2. The owner or operator of the facility where ignitable or reactive waste is stored or treated in a tank shall comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in tables 2-1 through 2-6 of the national fire protection association's "flammable and combustible liquids code", (1977 or 1981), incorporated by reference, see section 33-24-01-05.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-112. Special requirements for incompatible wastes.

1. Incompatible wastes, or incompatible wastes and materials, may not be placed in the same tank system, unless subsection 2 of section 33-24-05-08 is complied with.

2. Hazardous waste may not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless subsection 2 of section 33-24-05-08 is complied with.

History: Effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-30.3-04

33-24-05-113. Waste analysis and trial tests. In addition to performing the waste analyses required by section 33-24-05-04, the owner or operator shall, when a tank system is to be used to treat chemically or to store a hazardous waste that is substantially different from waste previously treated or stored in that tank system or to be used to treat chemically a hazardous waste with a substantially different process than any previously used in that tank system:

1. Conduct waste analyses and trial treatment for storage tests (~~e.g.,~~ for example, bench scale or pilot-plant scale tests); or

2. Obtain written, documented information on similar wastes under similar operating conditions to show that the proposed treatment or storage will meet the requirements of subsection 1 of section 33-24-05-107.

History: Effective December 1, 1988; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-114. Special requirements for generators of between one hundred and one thousand kilograms per month that accumulate hazardous waste in tanks.

1. The requirements of this section apply to small quantity generators of more

than one hundred kilograms, but less than one thousand kilograms of hazardous waste in a calendar month, that accumulate hazardous waste in tanks for less than one hundred eighty days (or two hundred seventy days if the generator must ship the waste greater than two hundred miles), and do not accumulate over six thousand kilograms onsite at anytime.

2. Generators of between one hundred and one thousand kilograms per month hazardous waste shall comply with the following general operating requirements:

   a. Treatment or storage of hazardous waste in tanks must comply with subsection 2 of section 33-24-05-08.

   b. Hazardous wastes or treatment reagents may not be placed in a tank if they could cause the tank or its inner liner to rupture, leak, corrode, or otherwise fail before the end of its intended life.

   c. Uncovered tanks must be operated to ensure at least sixty centimeters (2 feet) of freeboard, unless the tank is equipped with a containment structure (~~e.g.,~~ for example, dike or trench), a drainage control system, or a diversion structure (~~e.g.,~~ for example, standby tank) with a capacity that equals or exceeds the volume of the top sixty centimeters (2 feet) of the tank.

   d. Where hazardous waste is continuously fed into a tank, the tank must be equipped with a means to stop this inflow (~~e.g.,~~ for example, waste feed cutoff system or bypass system to a standby tank).

      [Note: These systems are intended to be used in the event of a leak or overflow from the tank due to a system failure (~~e.g.,~~ for example, a malfunction in the treatment process, a crack in the tank, etc.).]

3. Generators of between one hundred and one thousand kilograms per month accumulating hazardous waste in tanks shall inspect, where present:

   a. Discharge control equipment (~~e.g.,~~ for example, waste feed cutoff systems, bypass systems, and drainage systems) at least once each operating day to ensure that it is in good working order;

   b. Data gathered from monitoring equipment (~~e.g.,~~ for example, pressure and temperature gauges) at least once each operating day to ensure that the tank is being operated according to its design;

   c. The level of waste in the tank at least once each operating day to ensure compliance with subsection 3 of section 33-24-05-105;

   d. The construction materials of the tank at least weekly to detect corrosion or leaking of fixtures or seams; and

   e. The construction materials of, and the area immediately surrounding, discharge confinement structures (~~e.g.,~~ for example, dikes) at least

weekly to detect erosion or obvious signs of leakage (~~e.g.,~~ for example, wet spots or dead vegetation).

4. Generators of between one hundred and one thousand kilograms per month accumulating hazardous waste in tanks must, upon closure of the facility, remove all hazardous waste from tanks, discharge control equipment, and discharge confinement structures.

   [Note: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with subsection 3 or 4 of section 33-24-02-03 that any solid waste removed from the owner's or operator's tank is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and shall manage it in accordance with all applicable requirements of chapters 33-24-03 through 33-24-06.]

5. Generators of between one hundred and one thousand kilograms per month shall comply with the following special requirements for ignitable or reactive waste:

   a. Ignitable or reactive waste may not be placed in a tank, unless:

      (1) The waste is treated, rendered, or mixed before or immediately after placement in a tank so that the resulting waste, mixture or dissolution of material no longer meets the definition of ignitable or reactive wastes under section 33-24-02-11 or section 33-24-02-13 of this article, and subsection 2 of section 33-24-05-08 is complied with;

      (2) The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or

      (3) The tank is used solely for emergencies.

   b. The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks shall comply with the buffer zone requirements for tanks contained in tables 2-1 through 2-6 of the national fire protection association's "flammable and combustible liquids code" (1977 or 1981), as incorporated by reference, see section 33-24-01-05.)

6. Generators of between one hundred and one thousand kilograms per month must comply with the following special requirements for incompatible wastes:

   a. Incompatible wastes, or incompatible wastes and materials, (see appendix III for examples) may not be placed in the same tank, unless subsection 2 of section 33-24-05-08 is complied with; and

   b. Hazardous waste may not be placed in an unwashed tank which previously held an incompatible waste or material unless subsection 2 of section 33-24-05-08 is complied with.

History: Effective December 1, 1988; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-115. ~~Applicability of surface impoundment requirements.~~ ~~Sections 33-24-05-115 through 33-24-05-129 apply to owners and operators at facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as section 33-24-05-01 provides otherwise.~~ **Air emission standards.** The owner or operator shall manage all hazardous waste placed in a tank in accordance with the requirements of sections 33-24-05-400 through 33-24-05-474.

History: Effective January 1, 1984; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-116. ~~Design and operating requirements~~. [Reserved]

~~1. A surface impoundment that is not covered by subsection 3 must have a liner for all portions of the impoundment (except for existing portions of such impoundment which qualify for an exemption in accordance with subsection 2). The liner must be designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil or ground water or surface water at any time during the active life (including the closure period) of the impoundment. The liner may be constructed of materials that may allow wastes to migrate into the liner (but not into adjacent subsurface soil or ground water or surface water) during the active life of the facility, provided that the impoundment is closed in accordance with subdivision a of subsection 1 of section 33-24-05-119. For impoundments that will be closed in accordance with subdivision d of subsection 1 of section 33-24-05-119, the liner must be constructed of materials that can prevent wastes from migrating into the liner during the active life of the facility. The liner must be:~~

~~a. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;~~

~~b. Placed upon a foundation or base capable of providing support to the liners and resistance to pressure gradients above and below the liners to prevent failure of the liners due to settlement, compression, or uplift; and~~

~~c. Installed to cover all surrounding earth likely to be in contact with the waste or leachate.~~

~~2. The department on a case-by-case basis, may exempt an existing portion of a hazardous waste impoundment from subsection 1 if the owner or operator~~

demonstrates that the owner's or operator's existing design and operating practices, together with the location of his facility and the nature and quantity of waste will prevent migration of any hazardous constituents into the ground water or surface water:

a. During the active life of the facility (including the closure period), if the owner or operator closes the existing surface impoundment in accordance with subdivision a of subsection 1 of section 33-24-05-119; or

b. During the active life (including the closure period) and the postclosure care period, if the owner or operator closes the existing surface impoundment in accordance with subdivision b of subsection 1 of section 33-24-05-119.

3. The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction commences after July 29, 1992, and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992 must install two or more liners and a leachate collection and removal system between such liners. "Construction commences" is as defined in section 33-24-01-04 under "existing facility".

a. Liner

(1) The liner system must include:

(a) A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

(b) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet [91.44 centimeters] of compacted soil material with a hydraulic conductivity of no more than $1x10^{-7}$ centimeters per second.

(2) The liners must comply with subdivisions a, b, and c of subsection 1.

b. The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and

~~removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:~~

~~(1) Constructed with a bottom slope of one percent or more;~~

~~(2) Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-1}$ centimeters per second or more and a thickness of twelve inches [30.5 centimeters] or more; or constructed of synthetic or geonet drainage materials with a transmissivity of $3x10^{-4}$ square meters per second or more;~~

~~(3) Constructed of materials that are chemically resistant to the waste managed in the surface impoundment and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes and any waste cover materials or equipment used at the surface impoundment;~~

~~(4) Designed and operated to minimize clogging during the active life and postclosure care period; and~~

~~(5) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sumps. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.~~

~~c. The owner or operator shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner.~~

~~d. The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water.~~

~~4. The department may approve alternative design or operating practices to those specified in subsection 3 if the owner or operator demonstrates to the department that such design and operating practices, together with location characteristics:~~

~~a. Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal system specified in subsection 3; and~~

~~b. Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.~~

~~5. The double-liner requirement set forth in subsection 3 of this section may be~~

~~waived by the department for any monofill, if:~~

~~a. The monofill contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the EP toxicity characteristics in section 33-24-02-14, with hazardous waste numbers D004 through D017; and~~

~~b. The monofill meets the following:~~

~~(1) The monofill has:~~

~~(a) The monofill has at least one liner for which there is no evidence that such liner is leaking. For the purposes of this paragraph, the term "liner" means a liner designed, constructed, installed, and operated to prevent hazardous waste from passing into the liner at any time during the active life of the facility, or a liner designed, constructed, installed, and operated to prevent hazardous waste from migrating beyond the liner to adjacent subsurface soil, ground water, or surface water at any time during the active life of the facility. In the case of any surface impoundment which has been exempted from the requirements of subsection 3 on the basis of a liner designed, constructed, installed, and operated to prevent hazardous waste from passing beyond the liner, at the closure of such impoundment, the owner or operator must remove or decontaminate all waste residues, all contaminated liner material, and contaminated soil to the extent practicable. If all contaminated soil is not removed or decontaminated, the owner or operator of such impoundment will comply with appropriate postclosure requirements, including ground water monitoring and corrective action;~~

~~(b) The monofill is located more than one quarter mile [.40 kilometers] from an underground source of drinking water (as that term is defined in CFR section 144.3); and~~

~~(c) The monofill is in compliance with generally applicable ground water monitoring requirements for facilities with permits under Resource Conservation and Recovery Act section 3005(c); or~~

~~(2) The owner or operator demonstrates that the monofill is located, designed, and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.~~

~~6. The owner or operator of any replacement surface impoundment unit is exempt from subsection 3 if:~~

~~a. The existing unit was constructed in compliance with the design standards~~

~~of sections 3004 (o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and~~

~~b. There is no reason to believe that the liner is not functioning as designed.~~

~~7. A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers; alarms and other equipment; and human error.~~

~~8. A surface impoundment must have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit.~~

~~9. The department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.~~

~~10. Any new surface impoundment (including its underlying liners) must be located entirely above the seasonal high water table.~~

~~**History:** Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994.~~
~~**General Authority:** NDCC 23-20.3-03~~
~~**Law Implemented:** NDCC 23-20.3-03, 23-20.3-04~~

33-24-05-117. ~~**Monitoring and inspection.**~~ [Reserved]

~~1. During construction and installation, liners (except in the case of existing portions of surface impoundments exempt from subsection 1 of section 33-24-05-116) and cover systems (e.g., membranes, sheets, or coatings) must be inspected for uniformity, damage, and imperfections, e.g., holes, cracks, thin spots, or foreign materials. Immediately after construction or installation:~~

~~a. Synthetic liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and~~

~~b. Soil-based and admixed liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural or other nonuniformities that may cause an increase in the permeability of the liner or cover.~~

~~These inspections must be conducted by a qualified professional (i.e. registered professional engineer).~~

~~2. While a surface impoundment is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:~~

a. Deterioration, malfunctions, or improper operation of overtopping control systems.

b. Sudden drops in the level of the impoundments contents.

c. The presence of liquids in leak detection systems.

d. Severe erosion or other signs of deterioration in dikes or other containment devices.

3. Prior to the issuance of a permit, and after any period of time greater than six months during which the impoundment was not in service, the owner or operator shall obtain a certification from a qualified engineer that the impoundment's dike, including that portion of any dike which provides freeboard, has structural integrity. The certification must establish, in particular, that the dike:

a. Will withstand the stress of the pressure exerted by the types and amounts of waste to be placed in the impoundment; and

b. Will not fail due to scouring or piping, without dependence on any liner system included in the surface impoundment construction.

4. An owner or operator required to have a leak detection system shall comply with the following:

a. An owner or operator required to have a leak detection system under subsections 3 or 4 of section 33-24-05-116 must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

b. After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

c. "Pump operating level" is a liquid level proposed by the owner or operator and approved by the department based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994.

~~General Authority: NDCC 23-20.3-03~~
~~Law Implemented: NDCC 23-20.3-03, 23-20.3-04~~

33-24-05-118. ~~Emergency repairs - contingency plans.~~ Applicability of surface impoundment requirements. Sections 33-24-05-118 through 33-24-05-129 apply to owners and operators at facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as section 33-24-05-01 provides otherwise.

~~1. A surface impoundment must be removed from service in accordance with subsection 2 when:~~

~~a. The level of liquids in the impoundment suddenly drops and the drop is not known to be caused by changes in the flows into or out of the impoundment; or~~

~~b. The dike leaks.~~

~~2. When a surface impoundment must be removed from service as required by subsection 1, the owner or operator shall:~~

~~a. Immediately shut off the flow or stop the addition of wastes into the impoundment.~~

~~b. Immediately contain any surface leakage which has occurred or is occurring.~~

~~c. Immediately stop the leak.~~

~~d. Take any other necessary steps to stop or prevent catastrophic failure.~~

~~e. If a leak cannot be stopped by any other means, empty the impoundment.~~

~~f. Notify the department of the problem in writing within seven days after detecting the problem.~~

~~3. As part of the contingency plan required in sections 33-24-05-26 through 33-24-05-36, the owner or operator shall specify a procedure for complying with the requirements of subsection 2.~~

~~4. No surface impoundment that has been removed from service in accordance with the requirements of this section may be restored to service unless the portion of the impoundment which was failing is repaired and the following steps are taken:~~

~~a. If the impoundment was removed from service as the result of actual or imminent dike failure, the dikes structural integrity must be recertified in accordance with subsection 3 of section 33-24-05-117.~~

~~b. If the impoundment was removed from service as the result of a sudden drop in the liquid level, then:~~

(1) For any existing portion of the impoundment a liner must be installed in compliance with subsection 1 of section 33-24-05-116; and

(2) For any other portion of the impoundment, the repaired liner system must be certified by a qualified engineer as meeting the design specifications approved in the permit.

5. A surface impoundment that has been removed from service in accordance with the requirements of this section and that is not being repaired must be closed in accordance with the provisions of section 33-24-05-119.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-119. Closure and postclosure care.

1. At closure, the owner or operator shall:

a. Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless subsection 4 of section 33-24-02-03 applies; or

b. Comply with the following:

(1) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues;

(2) Stabilize remaining wastes to a bearing capacity sufficient to support final cover; and

(3) Cover the surface impoundment with a final cover designed and constructed to:

(a) Provide long term minimization of the migration of liquids through the closed impoundment;

(b) Function with minimum maintenance;

(c) Promote drainage and minimize erosion or abrasion of the final cover;

(d) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(e) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

~~2. If some waste residues or contaminated materials are left in place at final closure, the owner or operator shall comply with all postclosure requirements contained in sections 33-24-05-65 through 33-24-05-68, including maintenance and monitoring throughout the postclosure care period (specified in the permit under section 33-24-05-66). The owner or operator shall:~~

~~a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;~~

~~b. Maintain and monitor the leak detection system in accordance with paragraph 4 of subdivision b of subsection 3 of section 33-24-05-116, subdivision c of subsection 3 of section 33-24-05-116, and subsection 4 of section 33-24-05-117, and comply with all other applicable leak detection system requirements of this part;~~

~~c. Maintain and monitor the ground water monitoring system and comply with all other applicable requirements of sections 33-24-05-47 through 33-24-05-58; and~~

~~d. Prevent run-on and runoff from eroding or otherwise damaging the final cover.~~

~~3. The owner or operator shall also meet the following requirements:~~

~~a. If an owner or operator plans to close a surface impoundment in accordance with subdivision a of subsection 1, and the impoundment does not comply with the liner requirements of subsection 1 of section 33-24-05-116 and is not exempt from them in accordance with subsection 2 of that section, then:~~

~~(1) The closure plan for the impoundment under section 33-24-05-61 must include both a plan for complying with subdivision a of subsection 1 of this section and a contingent plan for complying with subdivision b of subsection 1 of this section in case not all contaminated subsoils can be practicably removed at closure; and~~

~~(2) The owner or operator shall prepare a contingent postclosure plan under section 33-24-05-67 for complying with subsection 2 of this section in case not all contaminated subsoils can be practicably removed at closure; and~~

~~b. The cost estimates calculated under section 33-24-05-76 for closure and postclosure care of an impoundment subject to this section must include the cost of complying with the contingent closure plan and the contingent postclosure plan in addition to the cost of expected closure under subdivision a of subsection 1 of this section.~~ **Design and operating requirements.**

1. A surface impoundment that is not covered by subsection 3 must have a liner for all portions of the impoundment, except for existing portions of such

impoundment which qualify for an exemption in accordance with subsection 2. The liner must be designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil or ground water or surface water at any time during the active life, including the closure period, of the impoundment. The liner may be constructed of materials that may allow wastes to migrate into the liner, but not into adjacent subsurface soil or ground water or surface water, during the active life of the facility, provided that the impoundment is closed in accordance with subdivision a of subsection 1 of section 33-24-05-122. For impoundments that will be closed in accordance with subdivision d of subsection 1 of section 33-24-05-122, the liner must be constructed of materials that can prevent wastes from migrating into the liner during the active life of the facility. The liner must be:

a. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

b. Placed upon a foundation or base capable of providing support to the liners and resistance to pressure gradients above and below the liners to prevent failure of the liners due to settlement, compression, or uplift; and

c. Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

2. The department, on a case-by-case basis, may exempt an existing portion of a hazardous waste impoundment from subsection 1 if the owner or operator demonstrates that the owner's or operator's existing design and operating practices, together with the location of the owner's or operator's facility and the nature and quantity of waste will prevent migration of any hazardous constituents into the ground water or surface water:

a. During the active life of the facility, including the closure period, if the owner or operator closes the existing surface impoundment in accordance with subdivision a of subsection 1 of section 33-24-05-122; or

b. During the active life, including the closure period, and the postclosure care period, if the owner or operator closes the existing surface impoundment in accordance with subdivision b of subsection 1 of section 33-24-05-122.

3. The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction commences after July 29, 1992, and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992 must install two or more liners and a

leachate collection and removal system between such liners. "Construction commences" is as defined in section 33-24-01-04 under "existing facility".

a. Liner.

(1) The liner system must include:

(a) A top liner designed and constructed of materials (for example, a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

(b) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (for example, a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet [91.44 centimeters] of compacted soil material with a hydraulic conductivity of no more than $1x10^{-7}$ centimeters per second.

(2) The liners must comply with subdivisions a, b, and c of subsection 1.

b. The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:

(1) Constructed with a bottom slope of one percent or more;

(2) Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-1}$ centimeters per second or more and a thickness of twelve inches [30.5 centimeters] or more; or constructed of synthetic or geonet drainage materials with a transmissivity of $3x10^{-4}$ square meters per second or more;

(3) Constructed of materials that are chemically resistant to the waste managed in the surface impoundment and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes and any waste cover materials or equipment used at the surface impoundment;

(4) Designed and operated to minimize clogging during the active life and postclosure care period; and

(5) Constructed with sumps and liquid removal methods (for example, pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sumps. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

c. The owner or operator shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner.

d. The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water.

4. The department may approve alternative design or operating practices to those specified in subsection 3 if the owner or operator demonstrates to the department that such design and operating practices, together with location characteristics:

a. Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal system specified in subsection 3; and

b. Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

5. The double-liner requirement set forth in subsection 3 may be waived by the department for any monofill, if:

a. The monofill contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the EP toxicity characteristics in section 33-24-02-14, with hazardous waste numbers D004 through D017; and

b. The monofill meets the following:

(1) The monofill:

(a) Has at least one liner for which there is no evidence that such liner is leaking. For the purposes of this paragraph, the term "liner" means a liner designed, constructed, installed, and operated to prevent hazardous waste from passing into the liner at any time during the active life of the facility, or a liner designed, constructed, installed, and operated to prevent hazardous waste from migrating beyond the liner to adjacent subsurface soil, ground water, or surface water at

any time during the active life of the facility. In the case of any surface impoundment which has been exempted from the requirements of subsection 3 on the basis of a liner designed, constructed, installed, and operated to prevent hazardous waste from passing beyond the liner, at the closure of such impoundment, the owner or operator must remove or decontaminate all waste residues, all contaminated liner material, and contaminated soil to the extent practicable. If all contaminated soil is not removed or decontaminated, the owner or operator of such impoundment will comply with appropriate postclosure requirements, including ground water monitoring and corrective action;

(b) Is located more than one-quarter mile [.40 kilometers] from an underground source of drinking water (as that term is defined in CFR section 144.3); and

(c) Is in compliance with generally applicable ground water monitoring requirements for facilities with permits under Resource Conservation and Recovery Act section 3005(c); or

(2) The owner or operator demonstrates that the monofill is located, designed, and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.

6. The owner or operator of any replacement surface impoundment unit is exempt from subsection 3 if:

a. The existing unit was constructed in compliance with the design standards of sections 3004 (o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

b. There is no reason to believe that the liner is not functioning as designed.

7. A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers; alarms and other equipment; and human error.

8. A surface impoundment must have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit.

9. The department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

10. Any new surface impoundment, including its underlying liners, must be located

entirely above the seasonal high water table.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-120. ~~Special requirements for ignitable or reactive waste.~~ ~~Ignitable or reactive waste may not be placed in a surface impoundment, unless the waste and impoundment satisfy all applicable requirements of sections 33-24-05-250 through 33-24-05-299.~~

~~1. The waste is treated, rendered, or mixed before or immediately after placement in the impoundment so that:~~

~~a. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive wastes under section 33-24-02-11 or 33-24-02-13; and~~

~~b. Subsection 2 of section 33-24-05-08 is complied with; or~~

~~2. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react; or~~

~~3. The surface impoundment is used solely for emergencies.~~ **Monitoring and inspection.**

1. During construction and installation, liners, except in the case of existing portions of surface impoundments exempt from subsection 1 of section 33-24-05-119, and cover systems (for example, membranes, sheets, or coatings) must be inspected for uniformity, damage, and imperfections, for example, holes, cracks, thin spots, or foreign materials. Immediately after construction or installation:

   a. Synthetic liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

   b. Soil-based and admixed liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural or other nonuniformities that may cause an increase in the permeability of the liner or cover.

   These inspections must be conducted by a qualified professional (for example, registered professional engineer).

2. While a surface impoundment is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

   a. Deterioration, malfunctions, or improper operation of overtopping control systems.

b. Sudden drops in the level of the impoundments contents.

c. The presence of liquids in leak detection systems.

d. Severe erosion or other signs of deterioration in dikes or other containment devices.

3. Prior to the issuance of a permit, and after any period of time greater than six months during which the impoundment was not in service, the owner or operator shall obtain a certification from a qualified engineer that the impoundment's dike, including that portion of any dike which provides freeboard, has structural integrity. The certification must establish, in particular, that the dike:

   a. Will withstand the stress of the pressure exerted by the types and amounts of waste to be placed in the impoundment; and

   b. Will not fail due to scouring or piping, without dependence on any liner system included in the surface impoundment construction.

4. An owner or operator required to have a leak detection system shall comply with the following:

   a. An owner or operator required to have a leak detection system under subsection 3 or 4 of section 33-24-05-119 must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

   b. After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

   c. "Pump operating level" is a liquid level proposed by the owner or operator and approved by the department based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

History: Effective January 1, 1984; amended effective December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-121. ~~Special requirements for incompatible wastes. Incompatible wastes, or incompatible wastes and materials, may not be placed in the same surface impoundment, unless the owner or operator complies with subsection 2 of section 33-24-05-08.~~ Emergency repairs - contingency plans.

1. A surface impoundment must be removed from service in accordance with subsection 2 when:

   a. The level of liquids in the impoundment suddenly drops and the drop is not known to be caused by changes in the flows into or out of the impoundment; or

   b. The dike leaks.

2. When a surface impoundment must be removed from service as required by subsection 1, the owner or operator shall:

   a. Immediately shut off the flow or stop the addition of wastes into the impoundment.

   b. Immediately contain any surface leakage which has occurred or is occurring.

   c. Immediately stop the leak.

   d. Take any other necessary steps to stop or prevent catastrophic failure.

   e. If a leak cannot be stopped by any other means, empty the impoundment.

   f. Notify the department of the problem in writing within seven days after detecting the problem.

3. As part of the contingency plan required in sections 33-24-05-26 through 33-24-05-36, the owner or operator shall specify a procedure for complying with the requirements of subsection 2.

4. No surface impoundment that has been removed from service in accordance with the requirements of this section may be restored to service unless the portion of the impoundment which was failing is repaired and the following steps are taken:

   a. If the impoundment was removed from service as the result of actual or imminent dike failure, the dike's structural integrity must be recertified in accordance with subsection 3 of section 33-24-05-120.

   b. If the impoundment was removed from service as the result of a sudden drop in the liquid level, then:

      (1) For any existing portion of the impoundment, a liner must be installed in compliance with subsection 1 of section 33-24-05-119; and

(2) For any other portion of the impoundment, the repaired liner system must be certified by a qualified engineer as meeting the design specifications approved in the permit.

5. A surface impoundment that has been removed from service in accordance with the requirements of this section and that is not being repaired must be closed in accordance with the provisions of section 33-24-05-122.

History: Effective January 1, 1984; amended effective October 1, 1986; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-122. ~~Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027.~~

~~1. Hazardous wastes F020, F021, F022, F023, F026, and F027 must not be placed in a surface impoundment unless the owner or operator operates the surface impoundment in accordance with a management plan for these wastes that is approved by the department pursuant to the standards set out in this section, and in accord with all other applicable requirements of this chapter. The factors to be considered are:~~

~~a. The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or volatilize or escape into the atmosphere;~~

~~b. The attenuative properties of underlying and surrounding soils or other materials;~~

~~c. The mobilizing properties of other materials codisposed with these wastes; and~~

~~d. The effectiveness of additional treatment, design, or monitoring techniques.~~

~~2. The department may determine that additional design, operating, and monitoring requirements are necessary for surface impoundments managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.~~ **Closure and postclosure care.**

1. At closure, the owner or operator shall:

a. Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless subsection 4 of section 33-24-02-03 applies; or

b. Comply with the following:

(1) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues;

(2) Stabilize remaining wastes to a bearing capacity sufficient to support final cover; and

(3) Cover the surface impoundment with a final cover designed and constructed to:

(a) Provide long-term minimization of the migration of liquids through the closed impoundment;

(b) Function with minimum maintenance;

(c) Promote drainage and minimize erosion or abrasion of the final cover;

(d) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(e) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

2. If some waste residues or contaminated materials are left in place at final closure, the owner or operator shall comply with all postclosure requirements contained in sections 33-24-05-65 through 33-24-05-68, including maintenance and monitoring throughout the postclosure care period (specified in the permit under section 33-24-05-66). The owner or operator shall:

a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

b. Maintain and monitor the leak detection system in accordance with paragraph 4 of subdivision b of subsection 3 of section 33-24-05-119, subdivision c of subsection 3 of section 33-24-05-119, and subsection 4 of section 33-24-05-120, and comply with all other applicable leak detection system requirements of this part;

c. Maintain and monitor the ground water monitoring system and comply with all other applicable requirements of sections 33-24-05-47 through 33-24-05-58; and

d. Prevent run-on and runoff from eroding or otherwise damaging the final cover.

3. The owner or operator shall also meet the following requirements:

a. If an owner or operator plans to close a surface impoundment in accordance with subdivision a of subsection 1, and the impoundment does not comply with the liner requirements of subsection 1 of section 33-24-

05-119 and is not exempt from them in accordance with subsection 2 of that section, then:

(1) The closure plan for the impoundment under section 33-24-05-61 must include both a plan for complying with subdivision a of subsection 1 and a contingent plan for complying with subdivision b of subsection 1 of this section in case not all contaminated subsoils can be practicably removed at closure; and

(2) The owner or operator shall prepare a contingent postclosure plan under section 33-24-05-67 for complying with subsection 2 in case not all contaminated subsoils can be practicably removed at closure; and

b. The cost estimates calculated under section 33-24-05-76 for closure and postclosure care of an impoundment subject to this section must include the cost of complying with the contingent closure plan and the contingent postclosure plan in addition to the cost of expected closure under subdivision a of subsection 1.

History: Effective October 1, 1986; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-123. ~~Action leakage rate.~~

~~1. The department shall approve an action leakage rate for surface impoundment units subject to subsection 3 or 4 of section 33-24-05-116. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot [.3048 meters]. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).~~

~~2. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subsection 4 of section 33-24-05-117 to an average daily flow rate (gallons per acre per day) for each sump. Unless the department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and if the unit is closed in accordance with subsection 2 of section 33-24-05-119, monthly during the postclosure care period when monthly monitoring is required under subsection 4 of section 33-24-05-117.~~ **Special requirements for ignitable or reactive waste.** Ignitable or reactive waste may not be placed in a surface impoundment, unless the waste and impoundment satisfy all applicable

requirements of sections 33-24-05-250 through 33-24-05-299.

1. The waste is treated, rendered, or mixed before or immediately after placement in the impoundment so that:

   a. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive wastes under section 33-24-02-11 or 33-24-02-13; and

   b. Subsection 2 of section 33-24-05-08 is complied with; or

2. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react; or

3. The surface impoundment is used solely for emergencies.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-124. ~~Response actions.~~

~~1. The owner or operator of surface impoundment units subject to subsection 3 or 4 of section 33-24-05-116 must have an approved response action plan before receipt of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in subsection 2.~~

~~2. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:~~

~~a. Notify the department in writing of the exceedance within seven days of the determination;~~

~~b. Submit a preliminary written assessment to the department within fourteen days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;~~

~~c. Determine to the extent practicable the location, size, and cause of any leak;~~

~~d. Determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;~~

~~e. Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks; and~~

~~f. Within thirty days after the notification that the action leakage rate~~

~~has been exceeded, submit to the department the results of the analyses specified in subdivisions c, d, and e of subsection 2, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the department a report summarizing the results of any remedial actions taken and actions planned.~~

~~3. To make the leak or remediation determinations, or both, in subdivisions c, d, and e of subsection 2, the owner or operator must:~~

~~a. Assess and conduct the following:~~

~~(1) Assess the source of liquids and amounts of liquids by source;~~

~~(2) Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and~~

~~(3) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or~~

~~b. Document why such assessments are not needed.~~ **Special requirements for incompatible wastes.** Incompatible wastes, or incompatible wastes and materials, may not be placed in the same surface impoundment, unless the owner or operator complies with subsection 2 of section 33-24-05-08.

History: ~~Effective January 1, 1995.~~ Amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-125. ~~[Reserved]~~ Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027.

1. Hazardous wastes F020, F021, F022, F023, F026, and F027 must not be placed in a surface impoundment unless the owner or operator operates the surface impoundment in accordance with a management plan for these wastes that is approved by the department pursuant to the standards set out in this section, and in accordance with all other applicable requirements of this chapter. The factors to be considered are:

   a. The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or volatilize or escape into the atmosphere;

   b. The attenuative properties of underlying and surrounding soils or other materials;

   c. The mobilizing properties of other materials codisposed with these wastes; and

d. The effectiveness of additional treatment, design, or monitoring techniques.

2. The department may determine that additional design, operating, and monitoring requirements are necessary for surface impoundments managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-126. ~~[Reserved]~~ Action leakage rate.

1. The department shall approve an action leakage rate for surface impoundment units subject to subsection 3 or 4 of section 33-24-05-119. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot [.3048 meters]. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (for example, slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (for example, the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

2. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subsection 4 of section 33-24-05-120 to an average daily flow rate (gallons per acre per day) for each sump. Unless the department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and if the unit is closed in accordance with subsection 2 of section 33-24-05-122, monthly during the postclosure care period when monthly monitoring is required under subsection 4 of section 33-24-05-120.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-127. ~~[Reserved]~~ Response actions.

1. The owner or operator of surface impoundment units subject to subsection 3 or 4 of section 33-24-05-119 must have an approved response action plan before receipt of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the

response action plan must describe the actions specified in subsection 2.

2. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

   a. Notify the department in writing of the exceedance within seven days of the determination;

   b. Submit a preliminary written assessment to the department within fourteen days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

   c. Determine to the extent practicable the location, size, and cause of any leak;

   d. Determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

   e. Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks; and

   f. Within thirty days after the notification that the action leakage rate has been exceeded, submit to the department the results of the analyses specified in subdivisions c, d, and e of subsection 2, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the department a report summarizing the results of any remedial actions taken and actions planned.

3. To make the leak or remediation determinations, or both, in subdivisions c, d, and e of subsection 2, the owner or operator must:

   a. Assess and conduct the following:

      (1) Assess the source of liquids and amounts of liquids by source;

      (2) Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

      (3) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

   b. Document why such assessments are not needed.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-128. ~~[Reserved]~~ Air emission standards. The owner or operator shall manage all hazardous waste placed in a surface impoundment in accordance with the requirements of sections 33-24-05-450 through 33-24-05-474.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03., 23-20.3-04

33-24-05-129. [Reserved]

33-24-05-130. Applicability of waste pile requirements.

1. Sections 33-24-05-130 through 33-24-05-143 apply to owners or operators of facilities that store or treat hazardous waste in piles, except as section 33-24-05-01 provides otherwise.

2. Sections 33-24-05-130 through 33-24-05-143 do not apply to owners or operators of waste piles that are closed with wastes left in place. Such waste piles are subject to regulation under sections 33-24-05-176 through 33-24-05-200.

3. The owner or operator of any waste pile that is inside or under a structure that provides protection from precipitation so that neither runoff nor leachate is generated is not subject to regulation under section 33-24-05-131 or under sections 33-24-05-47 through 33-24-05-58, provided that:

   a. Liquids or materials containing free liquids are not placed in the pile.

   b. The pile is protected from surface water run-on by the structure or in some other manner.

   c. The pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting.

   d. The pile will not generate leachate through decomposition or other reactions.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-131. Design and operating requirements.

1. A waste pile (except for an existing portion of a waste pile which qualifies for an exemption in accordance with subsection 2) must have:

   a. A liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or ground water or surface water at any time during the active life

(including the closure period) of the waste pile. The liner may be constructed of materials that may allow waste to migrate into the liner itself (but not into the adjacent subsurface soil or ground water or surface water) during the active life of the facility. The liner must be:

(1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(2) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(3) Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

b. A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. The department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed ~~thirty centimeters [one foot]~~ one foot [.3048 meters]. The leachate collection and removal system must be:

(1) Constructed of materials that are:

(a) Chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

(b) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

(2) Designed and operated to function without clogging through the scheduled closure of the waste pile.

2. The department, on a case-by-case basis, may exempt an existing portion of a hazardous waste pile from subsection 1 if the owner or operator demonstrate that the owner's or operator's existing design or operating practices, together with the location of the facility, will prevent migration of any hazardous constituents into the ground water or surface water during the active life of the facility (including the closure period).

3. The owner or operator of each new waste pile unit on which construction commences after January 29, 1992, each lateral expansion of a waste pile unit on which construction commences after July 29, 1992, and each replacement of an existing waste pile unit that is to commence reuse after July 29, 1992,

must install two or more liners and a leachate collection and removal system above and between such liners. "Construction commences" is as defined in section 33-24-01-04 under "existing facility".

a. Liners.

(1) The liner system must include:

(a) A top liner designed and constructed of materials (~~e.g.,~~ for example, a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

(b) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (~~e.g.,~~ for example a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet [91.44 centimeters] of compacted soil material with a hydraulic conductivity of no more than $1x10^{-7}$ centimeters per second.

(2) The liners must comply with paragraphs 1, 2, and 3 of subdivision ~~b~~a of subsection 1.

b. The leachate collection and removal system immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the waste pile during the active life and postclosure care period. The department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed ~~30 centimeters [1 foot]~~ one foot [.3048 meters]. The leachate collection and removal system must comply with paragraphs 3 and 4 of subdivision c of subsection 3.

c. The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:

(1) Constructed with a bottom slope of one percent or more;

(2) Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-2}$ centimeters per second or more and a

thickness of twelve inches [30.5 centimeters] or more; or constructed of synthetic or geonet drainage materials with a transmissivity of $3x10^{-5}$ square meters per second or more;

(3) Constructed of materials that are chemically resistant to the waste managed in the waste pile and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the waste pile;

(4) Designed and operated to minimize clogging during the active life and postclosure care period; and

(5) Constructed with sumps and liquid removal methods (~~e.g.,~~ for example, pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sumps. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

d. The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.

e. The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water.

4. The department may approve alternative design or operating practices to those specified in subsection 3 if the owner or operator demonstrates to the department that such design and operating practices, together with location characteristics:

a. Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in subsection 3; and

b. Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

5. Subsection 3 does not apply to monofills that are granted a waiver by the department in accordance with subsection 5 of section 33-24-05-~~116~~ 119.

6. The owner or operator of any replacement waste pile unit is exempt from subsection 3 if:

a. The existing unit was constructed in compliance with the design standards of section 3004(o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

b. There is no reason to believe that the liner is not functioning as

designed.

7. The owner or operator will be exempted from the requirements of subsection 1, if the department finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see section 33-24-05-50) into the ground water or surface water at any future time. In deciding whether to grant an exemption, the department will consider:

   a. The nature and quantity of the waste;

   b. The proposed alternate design and operation;

   c. The hydrogeologic setting of the facility, including attenuative capacity and thickness of the liners and soils present between the pile and ground water or surface water; and

   d. All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water.

8. The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portions of the pile during peak discharge from at least a twenty-five-year storm.

9. The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a twenty-four hour, twenty-five-year storm.

10. Collection and holding facilities (~~e.g.,~~ for example, tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

11. If the pile contains any particulate matter which may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the pile to control wind dispersal.

12. The department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-132. Monitoring and inspection.

1. During construction or installation, liners (except in the case of existing

portions of piles exempt from subsection 1 of section 33-24-05-131) and cover systems (~~e.g.,~~ for example, membranes, sheets, or coatings) must be inspected for uniformity, damage, and imperfections, ~~e.g.,~~ for example, holes, cracks, thin spots or foreign materials. Immediately after construction or installation:

a. Synthetic liners and covers must be inspected by an independent, qualified professional to ensure tight seams and joints and the absence of tears, punctures or blisters; and

b. Soil-based and admixed liners and covers must be inspected by an independent, qualified professional for imperfections including lenses, cracks, channels, root holes, or other structural nonuniformities that may cause an increase in the permeability of the liner or cover.

2. While a waste pile is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

a. Deterioration, malfunctions, or improper operation of run-on and runoff control systems;

b. The presence of liquids in leak detection systems where installed;

c. Proper functioning of wind dispersal control systems where present; and

d. The presence of leachate in and proper functioning of leachate collection and removal systems where present.

3. An owner or operator required to have a leak detection system under subsection 3 of section 33-24-05-131 must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

4. If, during the periodic removal of wastes from the pile and inspection of the underlying liner in accordance with subdivision b of subsection 1 of section 33-24-05-131, any deterioration, crack, or other condition is identified that is causing or could cause a leak, the owner or operator shall:

a. Notify the department of the condition in writing within seven days after detecting the condition; and

b. Repair or replace the liner (base) and obtain a certification from a qualified engineer that to the best of his knowledge and opinion the liner (base) has been repaired and leakage will not occur.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-133. Special requirements for ignitable or reactive waste. Ignitable or reactive waste may not be placed in a waste pile unless the waste or waste pile satisfies all applicable requirements of sections 33-24-05-250 through 33-24-05-299.

1. The waste is treated, rendered, or mixed before or immediately after placement in the pile so that:

   a. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under sections 33-24-02-11 or 33-24-02-13; and

   b. Subsection 2 of section 33-24-05-08 is complied with; or

2. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-134. Special requirements for incompatible wastes.

1. Incompatible wastes, or incompatible wastes and materials may not be placed in the same pile unless subsection 2 of section 33-24-05-08 is complied with.

2. A pile of hazardous waste that is incompatible with any waste or other material stored nearby in containers, other piles, open tanks, or surface impoundments must be separated from the other material, or protected from them by means of a dike, berm, wall, or other device.

3. Hazardous waste must not be piled on the same base where incompatible wastes or materials were previously piled, unless the base has been decontaminated sufficiently to ensure compliance with subsection 2 of section 33-24-05-08.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-135. Closure and postclosure care.

1. At closure, the owner or operator must remove or decontaminate all waste residue, contaminated containment system components (liners etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless subsection 4 of section 33-24-02-03 applies.

2. If, after removing or decontaminating all residues and making all reasonable efforts to affect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in subsection 1, the owner or

operator finds that not all contaminated subsoils can be practicably removed or decontaminated, the owner or operator shall close the facility and perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills (section 33-24-05-180).

3. In addition:

   a. The owner or operator of a waste pile that does not comply with the liner requirements of subsection 2 of section 33-24-05-131 and is not exempt from them in accordance with subsection 3 of section 33-24-05-130 or subsection 5 of section 33-24-05-131, shall:

      (1) Include in the closure plan for the pile under section 33-24-05-61 both a plan for complying with subsection 1 and a contingent plan for complying with subsection 2 in case not all contaminated subsoil can be practicably removed at closure; and

      (2) Prepare a contingent postclosure plan under section 33-24-05-67 for complying with subsection 2 in case not all contaminated subsoil can be practicably removed at closure.

   b. The cost estimates calculated under section 33-24-05-76 for closure and postclosure care of a pile subject to this subsection must include the cost of complying with the contingent closure plan and the contingent postclosure plan in addition to the cost of expected closure under subsection 1.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-136. Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027.

1. Hazardous wastes F020, F021, F022, F023, F026, and F027 must not be placed in waste piles that are not enclosed (as defined in subsection 3 of section 33-24-05-130) unless the owner or operator operates the waste pile in accordance with a management plan for these wastes that is approved by the department pursuant to the standards set out in this section and in accord with all other applicable requirements of this chapter. The factors to be considered are:

   a. The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

   b. The attenuative properties of underlying and surrounding soils or other materials;

   c. The mobilizing properties of other materials codisposed with these wastes; and

d. The effectiveness of additional treatment, design, or monitoring techniques.

2. The department may determine that additional design, operating, and monitoring requirements are necessary for piles managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

History: Effective October 1, 1986; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-137. Action leakage rate.

1. The department shall approve an action leakage rate for waste pile units subject to subsection 3 or 4 of section 33-24-05-131. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot [.3048 meters]. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (~~e.g.,~~ for example, slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (~~e.g.,~~ for example, the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

2. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly flow rate from the monitoring data obtained under subsection 3 of section 33-24-05-132 to an average daily flow rate (gallons per acre per day) for each sump. Unless the department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-138. Response actions.

1. The owner or operator of waste pile units subject to subsection 3 or 4 of section 33-24-05-131 must have an approved response action plan before receipt of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in subsection 2.

2. If the flow rate into the leak detection system exceeds the action leakage

rate for any sump, the owner or operator must:

a. Notify the department in writing of the exceedance within seven days of the determination;

b. Submit a preliminary written assessment to the department within fourteen days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

c. Determine to the extent practicable the location, size, and cause of any leak;

d. Determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

e. Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks; and

f. Within thirty days after the notification that the action leakage rate has been exceeded, submit to the department the results of the analyses specified in subdivisions c, d, and e of subsection 2, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the department a report summarizing the results of any remedial actions taken and actions planned.

3. To make the leak or remediation determinations, or both, in subdivisions c, d, and e of subsection 2, the owner or operator must:

a. Assess and conduct the following:

(1) Assess the source of liquids and amounts of liquids by source,

(2) Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(3) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

b. Document why such assessments are not needed.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-139. [Reserved]

33-24-05-140. [Reserved]

33-24-05-141. [Reserved]

33-24-05-142. [Reserved]

33-24-05-143. [Reserved]

33-24-05-144. Applicability of incinerator requirements.

1. Sections 33-24-05-144 through 33-24-05-159 apply to owners or operators of facilities that incinerate hazardous waste, except as section 33-24-05-01 provides otherwise. The ~~following facility owners or operators are considered to incinerate hazardous waste:~~

~~a. Owners or operators of hazardous waste incinerators (as defined in chapter 33-24-01); and~~

~~b. Owners or operators who burn hazardous waste in boilers or industrial furnaces in order to destroy them, or who burn hazardous waste in boilers or in industrial furnaces for any recycling purpose and elect to be regulated under section 33-24-05-144 through 33-24-05-159.~~

2. After consideration of the waste analysis included with the permit application, and unless the department finds that the waste will pose a threat to human health or the environment when burned in an incinerator, the department may on a case-by-case basis exempt the applicant from some or all of the requirements of sections 33-24-05-144 through 33-24-05-159, except 33-24-05-145 and 33-24-05-151 if:

   a. The waste to be burned is hazardous (either listed in or fails the characteristic tests in chapter 33-24-02) solely because it is:

      (1) Ignitable, or corrosive, or both; or

      (2) Reactive for characteristic other than those in subdivisions d and e of subsection 1 of section 33-24-02-13, and will not be burned when other hazardous wastes are present in the combustion zone; and

   b. The waste contains insignificant concentrations of the hazardous constituents listed in appendix V of chapter 33-24-02.

3. The owner or operator of an incinerator may conduct trial burns subject only to the requirements of subsection 2 of section 33-24-06-19.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-145. Waste analysis.

1. As a portion of the trial burn plan or with the permit application, the owner or operator shall have included an analysis of the waste feed sufficient to provide all information required by subdivision b of subsection 2 of section 33-24-06-19 or subdivision w of subsection 2 of section 33-24-06-17. Owners and operators of new hazardous waste incinerators shall provide the information required by subdivision c of subsection 2 of section 33-24-06-19 or subdivision w of subsection 2 of section 33-24-06-17 to the greatest extent possible.

2. Throughout normal operation the owner or operator shall conduct sufficient waste analysis to verify that waste feed to the incinerator is within the physical and chemical composition limit specified in the permit (under subsection 2 of section 33-24-05-149).

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-146. Designation of principle organic hazardous constituents.

1. Principle organic hazardous constituents in the waste feed must be treated to the extent required by the performance standard specified in section 33-24-05-147.

2. Designation of principle organic hazardous constituents.

   a. For each waste feed to be burned, one or more principle organic hazardous constituents will be specified in the facility's permit from among those constituents listed in chapter 33-24-02, Appendix V. This specification will be based on the degree of difficulty of incineration of the organic constituents in the waste and on their concentration or mass in the waste feed, considering the results of waste analysis and trial burns or alternative data submitted with the facility's permit application. Organic constituents which represent the greatest degree of difficulty of incineration will be those most likely to be designated as principle organic hazardous constituents. Constituents are more likely to be designated as principle organic hazardous constituents if they are present in large quantities or concentrations in the waste.

   b. Trial principle organic hazardous constituents will be designated for performance of trial burns in accordance with the procedure for obtaining trial burn permits in subsection 2 of section 33-24-06-19.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-147. Performance standards. An incinerator burning hazardous waste must be designed, constructed, and maintained so that when operated in accordance with operating requirements specified under section 33-24-05-149 it will meet the following performance standards:

1. a. Except as provided in subdivision b, an incinerator burning hazardous waste must achieve a destruction and removal efficiency of ninety-nine and ninety-nine one hundredths percent for each principle organic hazardous constituent designated (under section 33-24-05-146) in its permit for each waste feed. The destruction and removal efficiency is determined for each principle organic hazardous constituent from the following equation:

$$DRE = \frac{(W_{in} - W_{out})}{W_{in}} \times 100\%$$

where:

W_{in} = mass feed rate of one principle organic constituent in the waste stream feeding the incinerator, and

W_{out} = mass emission rate of the same principle organic hazardous constituent present in exhaust emissions prior to release to the atmosphere.

b. An incinerator burning wastes F020, F021, F022, F023, F026, or F027 must achieve a destruction and removal efficiency of ninety-nine and nine thousand nine hundred and ninety-nine ten thousandths percent for each principle organic hazardous constituent designated (under section 33-24-05-146) in its permit. This performance must be demonstrated on principle organic hazardous constituents that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. Destruction and removal efficiency is determined for each principle organic hazardous constituent from the equation in subdivision a of subsection 1 of section 33-24-05-147. In addition, the owner or operator of the incinerator must notify the department of his or her intent to incinerate hazardous wastes F020, F021, F022, F023, F026, and F027.

2. An incinerator burning hazardous waste and producing stack emissions of more than one and eight-tenths kilograms per hour [four pounds per hour] of hydrogen chloride must control hydrogen chloride emissions such that the rate of emission is no greater than the larger of either one and eight-tenths kilograms per hour or one percent of the hydrogen chloride in the stack gas prior to entering any pollution control equipment.

3. An incinerator burning hazardous waste must not emit particulate matter in excess of one hundred eighty milligrams per dry standard cubic meter [0.08

grains per dry standard cubic foot] when corrected for the amount of oxygen in the stacks according to the formula:

$$P_c = P_M \times \frac{14}{21-Y}$$

where:

P_c = the corrected concentration of particulate matter,

P_M = the measured concentration of particulate matter, and

Y = the measured concentration of oxygen in the stack gas using the Orsat method for oxygen analysis of dry flue gas presented in 40 CFR, part 60, Appendix A (method 3) of the federal air pollution control regulations.

This correction procedure is to be used by all hazardous waste incinerators except those operating under conditions of oxygen enrichment. For these facilities, the department will select an appropriate correction procedure to be specified in the facility permit.

4. For purposes of permit enforcement, compliance with the operating requirements specified in the permit under section 33-24-05-149 will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the performance requirements of this section may be "information" justifying modification, revocation, or reissuance of a permit under section 33-24-06-12.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-148. Hazardous waste incinerator permits.

1. The owner or operator of a hazardous waste incinerator may burn only waste specified in the permit and only under operating conditions specified for those wastes under section 33-24-05-149, except:

   a. In approved trial burns under subsection 2 of section 33-24-06-19; or

   b. Under exemptions created by section 33-24-05-144.

2. Other hazardous wastes may be burned only after operating conditions have been specified in a new permit or a permit modification as applicable. Operating requirements for new wastes may be based on either trial burn results or alternative data included with the permit application under subdivision w of subsection 2 of section 33-24-06-17.

3. The permit for a new hazardous waste incinerator must establish appropriate

conditions for each of the applicable requirements of sections 33-24-05-144 through 33-24-05-159, including but not limited to allowable waste feeds in operating conditions necessary to meet the requirements of section 33-24-05-149, sufficient to comply with the following standards:

a. For the period beginning with initial introduction of hazardous waste to the incinerator and ending with initiation of the trial burn, and only for the minimum time required to establish operating conditions required in subdivision b of this subsection, not to exceed a duration of seven hundred twenty hours operating time for treatment of hazardous waste, the operating requirements must be those most likely to ensure compliance with the performance standards of section 33-24-05-147, based on the department's engineering judgment. The department may extend the duration of this period once for up to seven hundred twenty additional hours when good cause for the extension is demonstrated by the applicant.

b. For the duration of the trial burn the operating requirements must be sufficient to demonstrate compliance with the performance standards of section 33-24-05-147 and must be in accordance with the approved trial burn plan.

c. For the period immediately following completion of the trial burn and only for the minimum period sufficient to allow sample analysis, data computation, and submission of the trial burn results by the applicant, and review of the trial burn results and modification of the facility permit by the department, the operating requirements must be those most likely to ensure compliance with performance standards of section 33-24-05-147 based on the department's engineering judgment.

d. For the remaining duration of the permit, the operating requirements must be those demonstrated in a trial burn or by alternative data specified in paragraph 3 of subdivision w of subsection 2 of section 33-24-06-17 as sufficient to ensure compliance with the performance standards of section 33-24-05-147.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-149. Operating requirements.

1. An incinerator must be operated in accordance with operating requirements specified in the permit. These will be specified on a case-by-case basis as those demonstrated (in a trial burn or in alternative data as specified in subsection 2 of section 33-24-05-148 and included with a facility's permit application) to be sufficient to comply with the performance standards of section 33-24-05-147.

2. Each set of operating requirements will specify the composition of the waste feed (including acceptable variations in the physical or chemical properties

of the waste feed which will not affect compliance with the performance requirement of section 33-24-05-147) to which the operating requirements apply. For each such waste feed, the permit will specify acceptable operating limits including the following conditions:

a. Carbon monoxide level in the stack exhaust gas;

b. Waste feed rate;

c. Combustion temperature;

d. An appropriate indicator of combustion gas velocity;

e. Allowable variation in incinerator system design or operating procedures; and

f. Such operating requirements as are necessary to ensure that the performance standards of section 33-24-05-147 are met.

3. During startup and shutdown of an incinerator, hazardous waste (except waste exempted in accordance with section 33-24-05-144) may not be fed into the incinerator unless the incinerator is operating within the conditions of operation, (temperature, air feed rate, etc.) specified in the permit.

4. Fugitive emissions from the combustion zone must be controlled by:

a. Keeping the combustion zone totally sealed against fugitive emissions;

b. Maintaining a combustion zone pressure lower than atmospheric pressure; or

c. An alternate means of control demonstrated (with the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

5. An incinerator must be operated with a functioning system to automatically cut off waste feed to the incinerator when operating conditions deviate from limits established under subsection 1.

6. An incinerator must cease operation when changes in waste feed, incinerator design, or operating conditions exceed limits designated in its permit.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-150. Monitoring and inspections.

1. The owner or operator shall conduct, at a minimum, the following monitoring while incinerating hazardous waste:

a. Combustion temperature, waste feed rate, and the indicator of combustion gas velocity specified in the permit must be monitored on a continuous basis;

b. Carbon monoxide must be monitored on a continuous basis at a point in the incinerator downstream of the combustion zone and prior to release to the atmosphere; and

c. Upon request by the department, sampling and analysis of the waste and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the performance standards of section 33-24-05-147.

2. The incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be completely inspected at least daily for leaks, spills, fugitive emissions, and signs of tampering.

3. The emergency waste feed cutoff system and associated alarms must be tested at least weekly to verify operability, unless the applicant demonstrates to the department that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. At a minimum, operational testing must be conducted monthly.

4. This monitoring and inspection data must be recorded and the records must be placed in the operating log required by section 33-24-05-40.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-151. Closure. At closure the owner or operator shall remove all hazardous waste and hazardous waste residues (including, but not limited to, ash, scrubber waters, and scrubber sludges) from the incinerator site.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-152. [Reserved]

33-24-05-153. [Reserved]

33-24-05-154. [Reserved]

33-24-05-155. [Reserved]

33-24-05-156. [Reserved]

33-24-05-157. [Reserved]

33-24-05-158. [Reserved]

33-24-05-159. [Reserved]

33-24-05-160. Applicability of land treatment requirements. The rules in sections 33-24-05-160 through 33-24-05-175 apply to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as section 33-24-05-01 provides otherwise.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-161. Treatment program.

1. An owner or operator subject to sections 33-24-05-160 through 33-24-05-175 shall establish a land treatment program that is designed to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed, or immobilized within the treatment zone. The department will specify in the facility permit the elements of the treatment program, including:

   a. The wastes that are capable of being treated at the unit based on a demonstration under section 33-24-05-162;

   b. Design measures and operating practices necessary to maximize the success of degradation, transformation, and the immobilization processes in the treatment zone in accordance with subsection 1 of section 33-24-05-163; and

   c. Unsaturated zone monitoring provisions meeting the requirements of section 33-24-05-165.

2. The department will specify in the facility permit the hazardous constituents that must be degraded, transformed, or immobilized under this chapter. Hazardous constituents are constituents identified in appendix V of chapter 33-24-02 that are reasonably expected to be in or derived from waste placed in or on the treatment zone.

3. The department will specify the vertical and horizontal dimensions of the treatment zone in the facility permit. The treatment zone is the portion of the unsaturated zone below and including the land surface in which the owner or operator intends to maintain the conditions necessary for effective degradation, transformation, or immobilization of hazardous constituents. The maximum depth of the treatment zone must be:

   a. No more than one and five-tenths meters [5 feet] from the initial soil surface; and

   b. More than 1 meter [3 feet] above the seasonal high water table.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-162. Treatment demonstration.

1. For each waste that will be applied to the treatment zone, the owner or operator shall demonstrate prior to application of the waste that hazardous constituents in the waste can be completely degraded, transformed, or immobilized in the treatment zone.

2. In making this demonstration, the owner or operator may use field tests, laboratory analyses, available data, or, in the case of existing units, operating data. If the owner or operator intends to conduct field tests or laboratory analyses in order to make the demonstration required under subsection 1 of this section the owner or operator shall obtain a treatment or disposal permit under subsection 3 of section 33-24-06-19. The department will specify in this permit the testing, analytical, design, and operating requirements (including the duration of the tests and analyses, and, in the case of field tests, the horizontal and vertical dimensions of the treatment zone, monitoring procedures, closure and cleanup activities) necessary to meet the requirements in subsection 3.

3. Any field test or laboratory analysis conducted in order to make a demonstration under subsection 1 must:

   a. Accurately simulate the characteristics and operating conditions for the proposed land treatment unit including:

      (1) The characteristics of the waste (including the presence of constituents in appendix V of chapter 33-24-02);

      (2) The climate of the area;

      (3) The topography of the surrounding area;

      (4) The characteristics of the soil in the treatment zone (including depth); and

      (5) The operating practices to be used at the unit;

   b. Be likely to show that hazardous constituents in the waste to be tested will be completely degraded, transformed, or immobilized in the treatment zone of the proposed land treatment unit; and

   c. Be conducted in a manner that protects human health and the environment considering:

      (1) The characteristics of the waste to be tested;

(2) The operating and monitoring measures to be taken during the course of the test;

(3) The duration of the tests;

(4) The volume of waste used in the test; and

(5) In the case of field tests, the potential for the migration of hazardous constituents to ground water or surface water.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-163. Design and operating requirements. The department will specify in the facility permit how the owner or operator will design, construct, operate and maintain the land treatment unit in compliance with this section.

1. The owner or operator shall design, construct, and maintain the unit to maximize the degradation, transformation and immobilization of hazardous constituents in the treatment zone. The owner or operator shall design, construct, operate and maintain the unit in accord with all design and operating conditions that were used in the treatment demonstration under section 33-24-05-162. At a minimum, the department will specify the following in the facility permit:

   a. The rate and method of waste application to the treatment zone;

   b. Measures to control soil pH;

   c. Measures to enhance microbial or chemical reaction, ~~e.g.,~~ for example, fertilization, tilling; and

   d. Measures to control the moisture content of the treatment zone.

2. The owner or operator shall design, construct, operate, and maintain the treatment zone to minimize runoff from hazardous constituents during the active life of the land treatment unit.

3. The owner or operator shall design, construct, operate, and maintain a run-on control system capable of preventing flow onto the treatment zone during peak discharge from at least a twenty-five-year storm.

4. The owner or operator shall design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a twenty-four-hour, twenty-five-year storm.

5. Collection and holding facilities, ~~e.g.,~~ for example, tanks or basins, associated with the run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain the design capacity

of the system.

6. If the treatment zone contains particulate matter which may be subject to wind dispersal, the owner or operator shall manage the unit to control wind dispersal.

7. The owner or operator shall inspect the unit weekly and after storms to detect evidence of:

   a. Deterioration, malfunctions, or improper operation of run-on or runoff control systems; and

   b. Improper functioning of wind dispersal control measures.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-164. Food chain crops. The department may allow the growth of food chain crops in or on the treatment zone only if the owner or operator satisfies the conditions of this section. The department will specify in the facility permit the specific food chain crops which may be grown.

1. The owner or operator shall demonstrate that there is no substantial risk to human health caused by the growth of such crops in or on the treatment zone by demonstrating, prior to the planting of such crops, that hazardous constituents other than cadmium:

   a. Will not be transferred to the food or feed portions of the crop by plant uptake or direct contact and will not otherwise be ingested by food chain animals, ~~e.g.,~~ for example, by grazing; or

   b. Will not occur in greater concentrations in or on the food or feed portions of crops grown on the treatment zone than in or on identical portions of the same crops grown on untreated soils under similar conditions in the same region.

2. The owner or operator shall make the demonstration required by subsection 1 prior to the planting of crops at the facility for all constituents identified in appendix V of 33-24-02 that are reasonably expected to be in or derived from waste placed in or on the treatment zone.

3. In making a demonstration under subsection 1, the owner or operator may use field tests, greenhouse studies, available data, or in the case of existing units, operating data, and shall:

   a. Base the demonstration on conditions similar to those present in the treatment zone, including soil characteristics (~~e.g.,~~ for example, pH, cation exchange capacity), specific wastes, application rates, application methods, and crops to be grown;

b. Describe the procedures used in conducting any tests, including the sample collection criteria, sample size, analytical methods, and statistical procedures.

4. If the owner or operator intends to conduct field tests or greenhouse studies in order to make the demonstration required under subsection 1, the owner or operator shall obtain a permit for conducting such activities.

5. The owner or operator shall comply with the conditions of either subdivision a or b if cadmium is contained in wastes applied to the treatment zone:

   a. The following condition must be met:

      (1) The pH of the waste and soil mixture must be 6.5 or greater at the time of each waste application, except for wastes containing cadmium in concentrations of two milligrams per kilogram (dry weight) or less;

      (2) The annual application of cadmium from waste must not exceed five-tenths kilogram per hectare on land used for production of tobacco, leafy vegetables, or root crops grown for human consumption. For other food chain crops the annual cadmium rate may not exceed:

         (a) Two kilograms per hectare through June 30, 1984;

         (b) One and twenty-five-hundredths kilograms per hectare during the period from July 1, 1984, through December 31, 1986; or

         (c) Five-tenths kilogram per hectare on and after January 1, 1987; and

      (3) The cumulative application rate of cadmium from waste must not exceed five kilograms per hectare if the waste and soil mixture has a pH of less than 6.5; and

      (4) If the waste and soil mixture has a pH of 6.5 or greater and is maintained at a pH of 6.5 or greater during crop growth, the cumulative application of cadmium from waste must not exceed: Five kilograms per hectare if soil cation exchange capacity is less than five milliequivalents per one hundred grams; ten kilograms per hectare if soil cation exchange capacity is five to fifteen milliequivalents per one hundred grams; and twenty kilograms per hectare if soil cation exchange capacity is greater than fifteen milliequivalents per one hundred grams.

   b. The following conditions must be met:

      (1) Animal feed must be the only food chain crop produced;

      (2) The pH of the waste and soil mixture must be 6.5 or greater at the time of waste application or at the time the crop is planted,

whichever occurs later, and this pH level must be maintained when food chain crops are grown;

(3) There must be an operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The operating plan must describe the measures to be taken to safeguard against the possible health hazards from cadmium entering the food chain which may result from alternative land uses; and

(4) Future property owners must be notified by stipulation in the land record or property deed which states that the property has received waste at high cadmium application rates and that food chain crops must not be grown, except in compliance with subdivision b.

History: Effective January 1, 1984; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-165. Unsaturated zone monitoring. An owner or operator subject to the land treatment requirements shall establish an unsaturated zone monitoring program to discharge the following responsibilities:

1. The owner or operator shall monitor the soil and soil-pore liquid to determine whether hazardous constituents migrate out of the treatment zone.

   a. The hazardous constituents to be monitored are those specified under subsection 2 of section 33-24-05-161.

   b. The department may require monitoring for principle hazardous constituents in lieu of the constituents specified under subsection 2 of section 33-24-05-161. Principle hazardous constituents are hazardous constituents contained in the waste to be applied at the unit that are the most difficult to treat, considering the combined effects of degradation, transformation, and immobilization. The department will establish principle hazardous constituents if it finds, based on waste analyses, treatment demonstrations, or other data that effective degradation, transformation or immobilization of the principle hazardous constituents will assure treatment of at least equivalent levels for the other hazardous constituents in the wastes.

2. The owner or operator must install an unsaturated zone monitoring system that includes soil monitoring using soil cores, and soil-pore liquid monitoring using devices such as lysimeters. The unsaturated zone monitoring system must consist of a sufficient number of sampling points at appropriate locations and depths to yield samples that:

   a. Represent the quality of background soil-pore liquid quality and the chemical makeup of soil that has not been affected by leakage from the treatment zone; and

b. Indicate the quality of soil-pore liquid in the chemical makeup of the soil below the treatment zone.

3. The owner or operator shall establish a background value for each hazardous constituent to be monitored under subsection 1. The permit will specify the background values for each constituent or specify the procedures to be used to calculate the background values.

   a. Background soil values may be based on a one-time sampling at a background plot having characteristics similar to that of the treatment zone.

   b. Background soil-pore liquid values must be based on at least quarterly sampling for one year at a background plot having characteristics similar to those of the treatment zone.

   c. The owner or operator shall express all background values in a form necessary for the determination of statistically significant increases under subsection 6.

   d. In taking samples used in the determination of all background values, the owner or operator shall use an unsaturated zone monitoring system that complies with subdivision a of subsection 2.

4. The owner or operator shall conduct soil monitoring and soil-pore liquid monitoring immediately below the treatment zone. The department will specify the frequency and timing of soil and soil-pore liquid monitoring in the facility permit after considering the frequency, timing, and rate of waste application and the soil permeability. The owner or operator shall express the results of the soil and soil-pore liquid monitoring in a form necessary for the determination of statistically significant increases under subsection 6.

5. The owner or operator shall use consistent sampling and analysis procedures that are designed to ensure sampling results that provide a reliable indication of soil-pore liquid quality in the chemical makeup in the soil below the treatment zone. At a minimum, the owner or operator shall implement procedures and techniques for:

   a. Sample collection;

   b. Sample preservation and shipment;

   c. Analytical procedures; and

   d. Chain of custody control.

6. The owner or operator shall determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under subsection 1 below the treatment zone each time the owner or operator conducts soil monitoring and soil-pore liquid monitoring under

subsection 4.

a. In determining whether a statistically significant increase has occurred, the owner or operator shall compare the value of each constituent as determined under subsection 4 to the background value for that constituent according to the statistical procedures specified in the facility permit under this subsection.

b. The owner or operator shall determine whether there has been a statistically significant increase below the treatment zone within a reasonable time period after completion of sampling. The department will specify that time period in the facility permit after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of the soil and soil-pore liquid samples.

c. The owner or operator shall determine whether there is a statistically significant increase below the treatment zone using a statistical procedure that provides reasonable confidence that migration from the treatment zone will be identified. The department will specify a statistical procedure in the facility permit that it finds:

(1) Is appropriate for the distribution of data used to establish background values; and

(2) Provides a reasonable balance between the probability of falsely identifying migration from the treatment zone and the probability of failing to identify real migration from the treatment zone.

7. If the owner or operator determines pursuant to subsection 6 that there is a statistically significant increase of hazardous constituents below the treatment zone, the owner or operator shall:

a. Notify the department of this finding in writing within seven days. The notification must indicate what constituents have shown statistically significant increases.

b. Within ninety days submit to the department an application for a permit modification to modify the operating practices at the facility in order to maximize the success of degradation, transformation, or immobilization processes in the treatment zone.

8. If the owner or operator determines pursuant to subsection 6 that there is a statistically significant increase of hazardous constituents below the treatment zone, the owner or operator may demonstrate that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis or evaluation. While the owner or operator may make this demonstration in addition to, or in lieu of, submitting a permit modification application under subdivision b of subsection 7, the owner or operator is still required to submit a permit modification within the time specified in subdivision b of subsection 7 should the demonstration be

unsuccessful. In making this demonstration the owner or operator shall:

a. Notify the department in writing within seven days of determining a statistically significant increase below the treatment zone that the owner or operator intends to make a determination under this subsection;

b. Within ninety days submit a report to the department demonstrating that a source other than the regulated units caused the increase or that the increase resulted in error in sampling analysis or evaluation;

c. Within ninety days submit to the department an application for permit modification to make any appropriate changes to the unsaturated zone monitoring program at the facility; and

d. Continue to monitor in accordance with the unsaturated zone monitoring program established under this section.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-166. Recordkeeping. The owner or operator shall include hazardous waste application dates and rates in the operating record required under section 33-24-05-40.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-167. Closure and postclosure care.

1. During the closure period the owner or operator shall:

   a. Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required under subsection 1 of section 33-24-05-163, except to the extent such measures are inconsistent with subdivision h of this subsection;

   b. Continue all operations in the treatment zone to minimize runoff of hazardous constituents as required under subsection 2 of section 33-24-05-163;

   c. Maintain the run-on control system required under subsection 3 of section 33-24-05-163;

   d. Maintain the runoff management system required under subsection 4 of section 33-24-05-163;

   e. Control wind dispersal of hazardous waste if required under subsection

6 of section 33-24-05-163;

f. Continue to comply with any prohibitions or conditions concerning growth of food chain crops under section 33-24-05-164;

g. Continue unsaturated zone monitoring in compliance with section 33-24-05-165, except that soil-pore liquid monitoring may be terminated one year after the last application of waste to the treatment zone if during that year, the soil-pore liquid monitoring shows that no hazardous constituents are leaching from the treatment zone in the soil-pore water; and

h. Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.

2. For the purpose of complying with section 33-24-05-64, when closure is completed the owner or operator may submit to the department certification by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

3. During the postclosure care period the owner or operator shall:

a. Continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in the treatment zone to the extent that such measures are consistent with other postclosure care activities;

b. Maintain a vegetative cover over closed portions of the facility;

c. Maintain the run-on control system required under subsection 3 of section 33-24-05-163;

d. Maintain the runoff management system required under subsection 4 of section 33-24-05-163;

e. Control wind dispersal of hazardous waste if required under subsection 6 of section 33-24-05-163;

f. Continue to comply with any prohibitions or conditions concerning growth of food chain crops under section 33-24-05-164; and

g. Continue unsaturated zone monitoring in compliance with section 33-24-05-165 except that soil-pore liquid monitoring may be terminated one year after the last application of waste to the treatment zone if, during that year, the soil-pore liquid monitoring shows that no hazardous constituents are leaching from the treatment zone in the soil-pore water.

4. The owner or operator is not subject to regulation under subsection 3 or subdivision h of subsection 1 if the department finds that the level of hazardous constituents in the treatment zone soil does not exceed the background value of those constituents by an amount that is statistically significant when using the test specified in subdivision c of this subsection. The owner or operator may submit such a demonstration to the department at any time during the closure or postclosure care periods. For purposes of this subsection:

   a. The owner or operator shall establish background soil values and determine whether there is a statistically significant increase over those values for all hazardous constituents specified in the facility permit under subsection 2 of section 33-24-05-161;

      (1) Background soil values may be based on a one-time sampling of the background plot having characteristics similar to those of the treatment zone; and

      (2) The owner or operator shall express background values and values for hazardous constituents in the treatment zone in a form necessary for the determination of statistically significant increases under subdivision c;

   b. In taking samples used in the determination of background and treatment zone values, the owner or operator shall take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical makeup of soil that has not been affected by leakage from the treatment zone and the soil within the treatment zone, respectively; and

   c. In determining whether a statistically significant increase has occurred, the owner or operator shall compare the value of each constituent in the treatment zone to the background value of that constituent using a statistical procedure that provides reasonable confidence that constituent presence in the treatment zone will be identified. The owner or operator shall use a statistical procedure that:

      (1) Is appropriate for the distribution of the data used to establish background values; and

      (2) Provides a reasonable balance between the probability of falsely identifying hazardous constituent presence in the treatment zone and the probability of failing to identify a real presence in the treatment zone.

5. During closure or postclosure care, or both, the owner or operator is not subject to regulation under sections 33-24-05-47 through 33-24-05-58 if the department finds that the owner or operator satisfies subsection 4 of this section and if unsaturated zone monitoring under section 33-24-05-165 indicates that hazardous constituents have not migrated beyond the treatment zone during the active life of the land treatment unit.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-168. Special requirements for ignitable or reactive waste. The owner or operator may not apply ignitable or reactive waste to the treatment zone unless the waste and the treatment zone meet all applicable requirements of sections 33-24-05-250 through 33-24-05-299.

1. The waste is immediately incorporated into the soil so that:

   a. The resulting waste mixture or dissolution of material no longer meets the definition of ignitable or reactive waste under section 33-24-02-11 or 33-24-02-13; and

   b. Subsection 2 of section 33-24-05-08 is complied with; or

2. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-169. Special requirements for incompatible wastes. The owner or operator may not place incompatible wastes or incompatible wastes and materials in or on the same treatment zone unless subsection 2 of section 33-24-05-08 is complied with.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-170. Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027.

1. Hazardous wastes F020, F021, F022, F023, F026, and F027 must not be placed in a land treatment unit unless the owner or operator operates the facility in accordance with a management plan for these wastes that is approved by the department pursuant to the standards set out in this section, and in accord with all other applicable requirements of this chapter. The factors to be considered are:

   a. The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

   b. The attenuative properties of underlying and surrounding soils or other materials;

c. The mobilizing properties of other materials codisposed with these wastes; and

d. The effectiveness of additional treatment, design, or monitoring techniques.

2. The department may determine that additional design, operating, and monitoring requirements are necessary for land treatment facilities managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

History: Effective October 1, 1986; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-171. [Reserved]

33-24-05-172. [Reserved]

33-24-05-173. [Reserved]

33-24-05-174. [Reserved]

33-24-05-175. [Reserved]

33-24-05-176. Applicability of landfill requirements. Sections 33-24-05-176 through 33-24-05-200 apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as section 33-24-05-01 provides otherwise.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-177. Design and operating requirements.

1. Any landfill that is not covered by subsection 3 must have a liner system for all portions of the landfill (except for existing portions of such landfill). The liner system must have:

   a. A liner that is designed, constructed, and installed to prevent any migration of wastes out of the landfill to the adjacent subsurface soil or ground water or surface water at any time during the active life (including the closure period) of the landfill. The liner must be constructed of materials that prevent wastes from passing into the liner during the active life of the facility. The liner must be:

      (1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic

forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(2) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(3) Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

b. A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the landfill. The department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed ~~thirty centimeters [one foot]~~ one foot [.3048 meters]. The leachate collection and removal system must be:

(1) Constructed of materials that are:

(a) Chemically resistant to the waste managed in the landfill and the leachate expected to be generated; and

(b) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the landfill; and

(2) Designed and operated to function without clogging through the scheduled closure of the landfill.

2. The owner or operator will be exempted from the requirements of subsection 1 if the department finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see section 33-24-05-50) into the ground water or surface water at any future time. In deciding whether to grant an exemption, the department will consider:

a. The nature and quantity of the waste;

b. The proposed alternate design and operation;

c. The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the landfill and ground water and surface water; and

d. All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water.

3. The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each lateral expansion of a landfill unit on which construction commences after July 29, 1992, and each replacement of an existing landfill unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners. "Construction commences" is as defined in section 33-24-01-04 under "existing facility".

   a. Liner.

      (1) The liner system must include:

         (a) A top liner designed and constructed of materials (~~e.g.,~~ for example, a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

         (b) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (~~e.g.,~~ for example, a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet [91.44 centimeters] of compacted soil material with a hydraulic conductivity of no more than $1x10^{-7}$ centimeters per second.

      (2) The liners must comply with paragraphs 1, 2, and 3 of subdivision a of subsection 1.

   b. The leachate collection and removal system immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and postclosure care period. The department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed thirty centimeters [1 foot]. The leachate collection and removal system must comply with paragraphs 3 and 4 of subdivision c of subsection 3.

   c. The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:

(1) Constructed with a bottom slope of one percent or more;

(2) Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-2}$ centimeters per second or more and a thickness of twelve inches [30.5 centimeters] or more; or constructed of synthetic or geonet drainage materials with a transmissivity of $3x10^{-5}$ square meters per second or more;

(3) Constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the landfill;

(4) Designed and operated to minimize clogging during the active life and postclosure care period; and

(5) Constructed with sumps and liquid removal methods (~~e.g.,~~ for example, pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sumps. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

d. The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.

e. The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water.

4. The department may approve alternative design or operating practices to those specified in subsection 3 if the owner or operator demonstrates to the department that such design and operating practices, together with location characteristics:

a. Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in subsection 3; and

b. Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

5. The double-liner requirements set forth in subsection 3 may be waived by the department for any monofill, if:

a. The monofill contains only hazardous waste from foundry furnace emission controls or metal casting molding sand and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the toxicity characteristics in section 33-24-02-14 with hazardous

waste numbers D004 through D017; and

b. Monofill liner.

(1) Evidence of leaking.

(a) The monofill has at least one liner for which there is no evidence that such liner is leaking;

(b) The monofill is located more than one-quarter mile from an underground source of drinking water (as that term is defined in 40 CFR part 144.3); and

(c) The monofill is in compliance with generally acceptable ground water monitoring requirements for facilities with permits; or

(2) The owner or operator demonstrates that the monofill is located, designed, and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.

6. The owner or operator of any replacement landfill unit is exempt from subsection 3 if:

a. The existing unit was constructed in compliance with the design standards of section 3004(o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

b. There is no reason to believe that the liner is not functioning as designed.

7. The owner or operator shall design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a twenty-five-year storm.

8. The owner or operator shall design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a twenty-four-hour, twenty-five-year storm.

9. Collection and holding facilities (~~e.g.,~~ for example, tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of this system.

10. If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the landfill to control wind dispersal.

11. The department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-178. Monitoring and inspection.

1. During construction or installation, the liners (except in the case of existing portions of landfills exempt from subsection 1 of section 33-24-05-177) and cover systems (~~e.g.,~~ for example, membranes, sheets or coating) must be inspected for uniformity, damage, and imperfections (~~e.g.,~~ for example, holes, cracks, thin spots, or foreign materials) immediately after construction or installation:

   a. Synthetic liners and covers must be inspected by a qualified professional (i.e. registered professional engineer) to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

   b. Soil based and admixed liners and covers must be inspected by a qualified professional (~~i.e.,~~ for example, registered professional engineer) for imperfections, including lenses, cracks, channels, root holes, or other structural nonuniformities that may cause an increase in the permeability of the liner or cover.

2. While a landfill is in operation it must be inspected weekly and after storms to detect evidence of any of the following:

   a. Deterioration, malfunctions, or improper operation of run-on and runoff control systems;

   b. Proper functioning of wind dispersal control systems where present; and

   c. The presence of leachate in and proper functioning of leachate collection and removal systems where present.

3. Leak detection system.

   a. An owner or operator required to have a leak detection system under subsections 3 or 4 of section 33-24-05-177 must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

   b. After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units

on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

c. "Pump operating level" is a liquid level proposed by the owner or operator and approved by the department based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-179. Surveying and recordkeeping. The owner or operator of a landfill shall maintain the following items in the operating records required under section 33-24-05-40:

1. On a map, the exact location and dimensions, including depth, of each cell with respect to permanently surveyed bench marks; and

2. The contents of each cell and the approximate location of each hazardous waste type within each cell.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-180. Closure and postclosure care.

1. At final closure of the landfill or upon closure of any cell, the owner or operator shall cover the landfill or cell with a final cover designed and constructed to:

   a. Provide long-term minimization of migration of liquids through the closed landfill;

   b. Function with minimum maintenance;

   c. Promote drainage and minimize erosion or abrasion of the cover;

   d. Accommodate settling and subsidence so that the cover's integrity is maintained; and

   e. Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

2. After final closure the owner or operator shall comply with all postclosure

requirements contained in sections 33-24-05-65 through 33-24-05-68 including maintenance and monitoring throughout the postclosure care period (specified in the permit under section 33-24-05-65). The owner or operator shall:

a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

b. Continue to operate the leachate collection and removal system until leachate is no longer detected;

c. Maintain and monitor the leak detection system in accordance with paragraph 4 of subdivision c of subsection 3 of section 33-24-05-177, subdivision d of subsection 3 of section 33-24-05-177, and subsection 3 of section 33-24-05-178, and comply with all other applicable leak detection system requirements of this part;

d. Maintain and monitor the ground water monitoring system and comply with all other applicable requirements of sections 33-24-05-47 through 33-24-05-58;

e. Prevent run-on and runoff from eroding or otherwise damaging the final cover; and

f. Protect and maintain surveyed benchmarks used in complying with section 33-24-05-179.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-181. Special requirements for ignitable or reactive waste.

1. Except as provided in subsection 2, and in section 33-24-05-185, ignitable or reactive waste may not be placed in a landfill, unless the waste and landfill meet all applicable requirements of sections 33-24-05-250 through 33-24-05-299, and:

   a. The resulting waste mixture or dissolution of material no longer meets the definition of ignitable or reactive waste under sections 33-24-02-11 or 33-24-02-13; and

   b. Subsection 2 of section 33-24-05-08 is complied with.

2. Except for prohibited wastes which remain subject to treatment standards in sections 33-24-05-280 through 33-24-05-289, ignitable wastes in containers may be landfilled without meeting the requirements of subsection 1, provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum,

ignitable wastes must be disposed of in nonleaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture, or any other condition that might cause ignition of the wastes; must be covered daily with soil or other noncombustible material to minimize the potential for ignition of the wastes; and may not be disposed of in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the waste.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-182. Special requirements for incompatible wastes. Incompatible wastes or incompatible wastes and materials, may not be placed in the same landfill cell unless subsection 2 of section 33-24-05-08 is complied with.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-183. Special requirements for bulk and containerized waste.

1. Bulk or noncontainerized liquid waste or waste containing free liquids may be placed in a landfill prior to May 8, 1985, only if:

   a. The landfill has a liner and leachate collection and removal system that meet the requirements of subsection 1 of section 33-24-05-177; or

   b. Before disposal, the liquid waste or waste containing free liquids is treated or stabilized, chemically or physically (~~e.g.,~~ for example, by mixing with a sorbent solid), so that free liquids are no longer present.

2. Effective May 8, 1985, the placement of bulk or noncontainerized liquid hazardous waste or hazardous waste containing free liquids (whether or not sorbents have been added) in any landfill is prohibited.

3. To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: method 9095 (paint filter liquids test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", ~~[environmental protection agency publication~~ SW-846, as incorporated by reference in section 33-24-01-05.

4. Containers holding free liquids must not be placed in a landfill unless:

   a. All freestanding liquid:

      (1) Has been removed by decanting, or other methods;

      (2) Has been mixed with sorbent or solidified so that free-standing

liquid is no longer observed; or

(3) Has been otherwise eliminated; or

b. The container is very small, such as an ampule; or

c. The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

d. The container is a lab pack as defined in section 33-24-05-185 and is disposed of in accordance with section 33-24-05-185.

5. Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable. Nonbiodegradable sorbents are: materials listed or described in subdivision a of subsection 5; materials that pass one of the tests in subdivision b of subsection 5; or materials that are determined by the department to be nonbiodegradable through the chapter 33-24-01 petition process.

a. Nonbiodegradable sorbents.

(1) Inorganic minerals, other inorganic materials, and elemental carbon (~~e.g.,~~ for example, aluminosilicates, clays, smectites, Fuller's earth, bentonite, calcium bentonite, montmorillonite, calcined montmorillonite, kaolinite, micas (illite), vermiculites, zeolites; calcium carbonate (organic free limestone); oxides/hydroxides, alumina, lime, silica (sand), diatomaceous earth; perlite (volcanic glass); expanded volcanic rock; volcanic ash; cement kiln dust; fly ash; rice hull ash; activated charcoal/activated carbon); or

(2) High molecular weight synthetic polymers (~~e.g.,~~ for example, polyethylene, high density polyethylene (HDPE), polypropylene, polystyrene, polyurethane, polyacrylate, polynorborene, polyisobutylene, ground synthetic rubber, cross-linked allylstyrene and tertiary butyl copolymers). This does not include polymers derived from biological material or polymers specifically designed to be degradable; or

(3) Mixtures of these nonbiodegradable materials.

b. Tests for nonbiodegradable sorbents.

(1) The sorbent material is determined to be nonbiodegradable under ASTM method G21-70 (1984a)-Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi; or

(2) The sorbent material is determined to be nonbiodegradable under ASTM method G22-76 (1984b)-Standard Practice for Determining Resistance of Plastics to Bacteria~~.~~; or

(3) The sorbent material is determined to the nonbiodegradable under

Organization for Economic Cooperation and Development test 301B: [CO_2 Evolution (Modified Sturm Test)].

6. Effective November 8, 1985, the placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the department, or the department determines, that:

   a. The only reasonably available alternative to the placement in such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under interim status, which contains, or may reasonably be anticipated to contain, hazardous waste; and

   b. Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water (as that term is defined in ~~the~~ 40 CFR part 144.3).

[Note: Chapter 33-24-06 requires that the waste analysis plan be submitted with part B of the permit application.]

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-184. Special requirements for containers. Unless they are very small such as an ampule, containers must be either:

1. At least ninety percent full when placed in the landfill; or

2. Crushed, shredded or similarly reduced in volume to the maximum practical extent before burial in the landfill.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-185. Disposal of small containers of hazardous waste in overpacked drums (lab packs). Small containers of hazardous waste in overpacked drums (lab packs) may be placed in a landfill if the following requirements are met:

1. Hazardous waste must be packaged in nonleaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by the contained waste. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the department of transportation hazardous materials regulations [49 CFR, parts 173, 178, and 179] if those regulations specify particular inside container for the waste.

2. The inside containers must be overpacked in an open head department of transportation specification metal shipping container [49 CFR, parts 178 and 179] of no more than four hundred sixteen-liter [110 gallon] capacity and surrounded by, at a minimum, a sufficient quantity of sorbent material, determined to be nonbiodegradable in accordance with subsection 5 of section 33-24-05-183, to completely sorb all of the liquid contents of the inside containers. The metal outer container must be full after it has been packed with inside containers and sorbent material.

3. The sorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers in accordance with subsection 2 of section 33-24-05-08.

4. Incompatible wastes as defined in section 33-24-01-04 may not be placed in this same outside container.

5. Reactive wastes, other than cyanide or sulfide-bearing waste, as defined in subdivision e of subsection 1 of section 33-24-02-13 must be treated or rendered nonreactive prior to packaging in accordance with subsections 1 through 4. Cyanide and sulfide-bearing reactive waste may be packed in accordance with subsections 1 through 4 without first being treated or rendered nonreactive.

6. Such disposal is in compliance with the requirements of sections 33-24-05-250 through 33-24-05-299. Persons who incinerate lab packs according to the requirements in subdivision a of subsection 3 of section 33-24-05-282 may use fiber drums in place of metal outer containers. Such fiber drums must meet the DOT specifications in 49 CFR 173.12 and be overpacked according to the requirements in subsection 2.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-186. Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027.

1. Hazardous wastes F020, F021, F022, F023, F026, and F027 may not be placed in a landfill unless the owner or operator operates the landfill in accordance with a management plan for these wastes that is approved by the department pursuant to the standards set out in this section and in accord with all other applicable requirements of this chapter. The factors to be considered are:

   a. The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through the soil or to volatilize or escape into the atmosphere;

   b. The attenuative properties of underlying and surrounding soils or other materials;

c. The mobilizing properties of other materials codisposed with these wastes; and

d. The effectiveness of additional treatment, design, or monitoring requirements.

2. The department may determine that additional design, operating, and monitoring requirements are necessary for landfills managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

History: Effective October 1, 1986; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-187. Action leakage rate.

1. The department shall approve an action leakage rate for landfill units subject to subsection 3 or 4 of section 33-24-05-177. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot [.3048 meters]. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (~~e.g.,~~ for example, slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leaking detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leaking detection system, and proposed response actions (~~e.g.,~~ for example, the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

2. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subsection 3 of section 33-24-05-178, to an average daily flow rate (gallons per acre per day) for each sump. Unless the department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and monthly during the postclosure care period when monthly monitoring is required under subsection 3 of section 33-24-05-178.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-188. Response actions.

1. The owner or operator of landfill units subject to subsection 3 or 4 of section 33-24-05-177 must have an approved response action plan before receipt

of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in subsection 2.

2. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

   a. Notify the department in writing of the exceedance within seven days of the determination;

   b. Submit a preliminary written assessment to the department within fourteen days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

   c. Determine to the extent practicable the location, size, and cause of any leak;

   d. Determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

   e. Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks; and

   f. Within thirty days after the notification that the action leakage rate has been exceeded, submit to the department the results of the analyses specified in subdivisions c, d, and e of subsection 2, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the department a report summarizing the results of any remedial actions taken and actions planned.

3. To make the leak or remediation determinations, or both, in subdivisions c, d, and e of subsection 2, the owner or operator must:

   a. Assess and conduct the following:

      (1) Assess the source of liquids and amounts of liquids by source;

      (2) Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

      (3) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

   b. Document why such assessments are not needed.

History: Effective January 1, 1994.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-189. [Reserved]

33-24-05-190. [Reserved]

33-24-05-191. [Reserved]

33-24-05-192. [Reserved]

33-24-05-193. [Reserved]

33-24-05-194. [Reserved]

33-24-05-195. [Reserved]

33-24-05-196. [Reserved]

33-24-05-197. [Reserved]

33-24-05-198. [Reserved]

33-24-05-199. [Reserved]

33-24-05-200. [Reserved]

33-24-05-201. Applicability to recyclable materials used in a manner constituting disposal.

1. Sections 33-24-05-201 through 33-24-05-204 apply to recyclable materials that are applied to or placed on the land:

   a. Without mixing with any other substances; or

   b. After mixing or combination with any other substances, these materials will be referred to throughout sections 33-24-05-201 through 33-24-05-204 as "materials used in a manner that constitutes disposal".

2. Products produced for the general public's use that are used in a manner that constitutes disposal and that contain recyclable materials are not presently subject to regulation if the recyclable materials have undergone a chemical reaction in the course of producing the products so as to become inseparable by physical means and if such products meet the applicable treatment standards in sections 33-24-05-280 through 33-24-05-289 (or applicable prohibition levels in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d), where no treatment standards have been established) for each recyclable material (~~i.e.,~~ for example, hazardous waste) that they contain. Commercial fertilizers that are produced for the general public's use that contain recyclable materials also are not presently subject to regulation

provided they meet the same treatment standards or prohibition levels for each recyclable material that they contain. However, zinc-containing fertilizers using hazardous waste K061 that are produced for the general public's use are not presently subject to regulation.

3. Antiskid or deicing uses of slags, which are generated from high temperature metals recovery (HTMR) processing of hazardous waste K061, K062, and F006, in a manner constituting disposal are not covered by the exemption in subsection 2 and remain subject to regulation.

History: Effective October 1, 1986; amended effective December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-202. Standards applicable to generators and transporters of materials used in a manner that constitutes disposal. Generators and transporters of materials that are used in a manner that constitutes disposal are subject to the applicable requirements of chapters 33-24-03 through 33-24-04 and the notification requirements.

History: Effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-203. Standards applicable to storers of materials that are to be used in a manner that constitutes disposal who are not the ultimate users. Owners or operators of facilities that store recyclable materials that are to be used in a manner that constitutes disposal, but who are not the ultimate users of the material, are regulated under all applicable provisions of chapters 33-24-05 through 33-24-07 and the notification requirements.

History: Effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-204. Standards applicable to users of materials that are used in a manner that constitutes disposal.

1. Owners or operators of facilities that use recyclable materials in a manner that constitutes disposal are regulated under all applicable provisions of chapters 33-24-05 through 33-24-07 and the notification requirements. (These requirements do not apply to products which contain these recyclable materials under the provisions of subsection 2 of section 33-24-05-201.)

2. The use of waste oil or used oil or other material, which is contaminated with dioxin or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment is prohibited.

History: Effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-205. [Reserved]

33-24-05-206. [Reserved]

33-24-05-207. [Reserved]

33-24-05-208. [Reserved]

33-24-05-209. [Reserved]

33-24-05-210. Repealed effective January 1, 1994.

33-24-05-211. Repealed effective January 1, 1994.

33-24-05-212. Repealed effective January 1, 1994.

33-24-05-213. Repealed effective January 1, 1994.

33-24-05-214. Repealed effective January 1, 1994.

33-24-05-215. Repealed effective January 1, 1994.

33-24-05-216. [Reserved]

33-24-05-217. [Reserved]

33-24-05-218. [Reserved]

33-24-05-219. [Reserved]

33-24-05-220. Repealed effective January 1, 1994.

33-24-05-221. Repealed effective January 1, 1994.

33-24-05-222. Repealed effective January 1, 1994.

33-24-05-223. Repealed effective January 1, 1994.

33-24-05-224. Repealed effective January 1, 1994.

33-24-05-225. [Reserved]

33-24-05-226. [Reserved]

33-24-05-227. [Reserved]

33-24-05-228. [Reserved]

33-24-05-229. [Reserved]

33-24-05-230. Applicability and requirements for recyclable materials utilized for precious metal recovery.

1. Sections 33-24-05-230 through 33-24-05-234 apply to recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, paladium, iridium, osmium, rhodium, ruthenium, or any combination of these.

2. Persons who generate, transport, or store recyclable materials that are regulated under sections 33-24-05-230 through 33-24-05-234 are subject to the following requirements:

   a. Notification requirements; and

   b. Chapter 33-24-03 (for generators), sections 33-24-04-04 and 33-24-04-05 (for transporters), and sections 33-24-05-38 and 33-24-05-39 (for persons who store).

3. Persons who store recycled materials that are regulated under this chapter must keep the following records to document that they are not accumulating these materials speculatively (as defined in subsection 3 of section 33-24-02-01):

   a. Records showing the volume of these materials stored at the beginning of the calendar year;

   b. The amount of these materials generated or received during the calendar year; and

   c. The amount of materials remaining at the end of the calendar year.

4. Recyclable materials that are regulated under this chapter that are accumulated speculatively (as defined in subsection 3 of section 33-24-02-01) are subject to all applicable provisions of chapters 33-24-03 through 33-24-07.

History: Effective October 1, 1986; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-231. [Reserved]

33-24-05-232. [Reserved]

33-24-05-233. [Reserved]

33-24-05-234. [Reserved]

33-24-05-235. Applicability and requirements of spent lead acid batteries being reclaimed.

1. ~~Sections 33-24-05-235 through 33-24-05-240 apply to persons who reclaim spent lead acid batteries that are recyclable materials ("spent batteries"). Persons who generate, transport, or collect spent batteries, or who store spent batteries but do not reclaim them are not subject to regulation under chapters 33-24-03 through 33-24-07, and also are not subject to the notification requirements.~~ The regulations of sections 33-24-05-235 through 33-24-05-249 apply to persons who reclaim (including regeneration) spent lead-acid batteries that are recyclable materials ("spent batteries"). Persons who generate, transport, or collect spent batteries, who regenerate spent batteries or who store spent batteries but do not reclaim them (other than spent batteries that are to be regenerated) are not subject to regulation under chapters 33-24-02 through 33-24-07, and also are not subject to the requirements of section 3010 of Resource Conservation and Recovery Act.

2. ~~Owners or operators of facilities that store spent batteries before reclaiming them are subject to the following requirements:~~ Owners or operators of facilities that store spent lead-acid batteries before reclaiming them (other than spent batteries that are to be regenerated) are subject to the following requirements:

   a. Notification requirements;

   b. All applicable provisions in sections 33-24-05-01 through 33-24-05-09 (but not section 33-24-05-04 (waste analysis)), and sections 33-24-05-15 through 33-24-05-44 (but not section 33-24-05-38 or 33-24-05-39 (dealing with the use of the manifest and manifest discrepancies)), and sections 33-24-05-47 through 33-24-05-136; and

   c. All applicable provisions in chapters 33-24-06 and 33-24-07.

History: Effective October 1, 1986; amended effective December 1, 1988; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-236. [Reserved]

33-24-05-237. [Reserved]

33-24-05-238. [Reserved]

33-24-05-239. [Reserved]

33-24-05-240. [Reserved]

33-24-05-241. [Reserved]

33-24-05-242. [Reserved]

33-24-05-243. [Reserved]

33-24-05-244. [Reserved]

33-24-05-245. [Reserved]

33-24-05-246. [Reserved]

33-24-05-247. [Reserved]

33-24-05-248. [Reserved]

33-24-05-249. [Reserved]

33-24-05-250. Purpose, scope, and applicability to land disposal restrictions.

1. Sections 33-24-05-250 through 33-24-05-300 identify hazardous wastes that are restricted from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be land disposed.

2. Except as specifically provided otherwise in sections 33-24-05-250 through 33-24-05-300 or chapter 33-24-02, the requirements of sections 33-24-05-250 through 33-24-05-300 apply to persons who generate or transport hazardous waste and owners and operators of hazardous waste treatment, storage, and disposal facilities.

3. Restricted wastes may continue to be land disposed as follows:

   a. Where persons have been granted an extension from the effective date of a prohibition under section 33-24-05-270 through 33-24-05-279 or pursuant to section 33-24-05-254, with respect to those wastes covered by the extension;

   b. Where persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition; ~~and~~

   c. Wastes that are hazardous only because they exhibit a hazardous characteristic, and which are otherwise prohibited ~~from land disposal under this section, are not prohibited from land disposal if the wastes:~~ under sections 33-24-05-250 through 33-24-05-299, or 40 CFR part 148, are not prohibited if the wastes:

      (1) Are disposed into a nonhazardous or hazardous injection well as defined in 40 CFR ~~144.6(a)~~ 146.6(a); ~~and~~

      (2) Do not exhibit any prohibited characteristic of hazardous waste ~~at the point of injection.; and~~ identified in sections 33-24-02-10 through 33-24-02-14 at the point of injection; and

      (3) If at the point of generation the injected wastes include D001 high

total organic carbon subcategory wastes or D012-D017 pesticide wastes that are prohibited under 40 CFR section 148.17(c), those wastes have been treated to meet the treatment standards of subsection 33-24-05-280 before injection.

d. ~~Removed and reserved.~~ Wastes that are hazardous only because they exhibit a hazardous characteristic, and which are otherwise prohibited under this part, are not prohibited if the wastes meet any of the following criteria, unless the wastes are subject to a specified method of treatment other than DEACT in section 33-24-05-280, or are D003 reactive cyanide:

(1) The wastes are managed in a treatment system which subsequently discharges to waters of the United States pursuant to a permit issued under section 402 of the Clean Water Act; or

(2) The wastes are treated for purposes of the pretreatment requirements of section 307 of the Clean Water Act; or

(3) The wastes are managed in a zero discharge system engaged in Clean Water Act-equivalent treatment as defined in subsection 1 of section 33-24-05-277; and

(4) The wastes no longer exhibit a prohibited characteristic at the point of land disposal (for example, placement in a surface impoundment).

4. The requirements of this section do not affect the availability of a waiver under section 121(d)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

5. The following hazardous wastes are not subject to any provision of sections 33-24-05-250 through 33-24-05-290.

a. Waste generated by small quantity generators of less than one hundred kilograms of nonacute hazardous waste or less than one kilogram of acute hazardous waste per month, as defined in section 33-24-02-05.

b. Waste pesticides that a farmer disposes of pursuant to section 33-24-03-40;

c. Wastes identified or listed as hazardous after November 8, 1984, for which the department has not promulgated land disposal prohibitions or treatment standards.

d. ~~De minimis losses to wastewater treatment systems of commercial chemical product or chemical intermediates that are ignitable (D001), or corrosive (D002), and that contain underlying hazardous constituents as defined in section 33-24-05-251, are not considered to be prohibited wastes. De minimis is defined as losses from normal material handling operations (e.g., spills from the unloading or transfer of materials from bins or~~

~~other containers, leaks from pipes, valves, or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers, leaks from well maintained pump packings and seals; sample purgings; and relief device discharges.~~ De minimis losses of characteristic wastes to wastewaters are not considered to be prohibited wastes and are defined as:

(1) Losses from normal material handling operations (for example, spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers; leaks from well-maintained pump packings and seals; sample purgings; and relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; rinsate from empty containers or from containers that are rendered empty by that rinsing; and laboratory wastes not exceeding one percent of the total flow of wastewater into the facility's headworks on an annual basis, or with a combined annualized average concentration not exceeding one part per million in the headworks of the facility's wastewater treatment or pretreatment facility; or

(2) Decharacterized wastes which are injected into class I nonhazardous wells which wastes combined volume is less than one percent of the total flow at the wellhead on an annualized basis, is no greater than ten thousand gallons [3785 liters] per day, and in which any underlying hazardous constituents in the characteristic wastes are present at the point of generation at levels less than ten times the treatment standards specified at section 33-24-05-288.

e. ~~Land disposal prohibitions do not apply to laboratory wastes displaying the characteristic of ignitability (D001) or corrosivity (D002), that are commingled with other plant wastewaters under designated circumstances: ignitable and corrosive laboratory wastes containing underlying hazardous constituents from laboratory operations, that are mixed with other plant wastewaters at facilities whose ultimate discharge is subject to regulation under the Clean Water Act (including wastewaters at facilities which have eliminated the discharge of wastewater), provided that the annualized flow of laboratory wastewater into the facility's headwork does not exceed one percent, or provided that the laboratory wastes' combined annualized average concentration does not exceed one part per million in the facility's headwork.~~ Land disposal prohibitions for hazardous characteristic wastes do not apply to laboratory wastes displaying the characteristic of ignitability (D001), corrosivity (D002), or organic toxicity characteristic (D012 through D043), that are mixed with other plant wastewaters at facilities whose ultimate discharge is subject to regulation under the Clean Water Act, including wastewaters at facilities which have eliminated the discharge of wastewater, provided that the annualized flow of laboratory wastewater into the facility's headworks does not exceed one percent, or provided that the laboratory wastes' combined annualized average concentration does not exceed one part per million in the facility's headworks.

6. Universal waste handlers and universal waste transporters, as defined in section 33-24-01-04, are exempt from sections 33-24-05-256 and 33-24-05-290 for the wastes listed below. These handlers are subject to regulation under sections 33-24-05-701 through 33-24-05-765.

   a. Batteries as described in section 33-24-05-702;

   b. Pesticides as described in section 33-24-05-703; and

   c. Mercury containing devices as described in section 33-24-05-704.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-251. Definitions applicable to sections 33-24-05-250 through 33-24-05-300. When used in sections 33-24-05-250 through 33-24-05-300, the following terms have the meanings given below:

1. "Debris" means solid material exceeding a sixty millimeter particle size that is intended for disposal and that is: a manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: any material for which a specific treatment standard is provided in sections 33-24-05-280 through 33-24-05-289, namely lead acid batteries, cadmium batteries, and radioactive lead solids; process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emission residues; and intact containers of hazardous waste that are not ruptured and that retain at least seventy-five percent of their original volume. A mixture of debris that has not been treated to the standards provided by section 33-24-05-285 and other material is subject to regulation as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection.

2. "End-of-pipe" means the point where effluent is discharged to the environment.

3. "Halogenated organic compounds or HOCs" means those compounds having a carbon-halogen bond which are listed under appendix VII.

~~3~~4. "Hazardous constituent or constituents" means those constituents listed in appendix V to chapter 33-24-02.

~~4~~5. "Hazardous debris" means debris that contains a hazardous waste listed in sections 33-24-02-15 through 33-24-02-19, or that exhibits a characteristic of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14.

6. "Inorganic metal-bearing waste" is a waste for which the environmental protection agency has established treatment standards for metal hazardous constituents, and which does not otherwise contain significant organic or cyanide content as described in subdivision a of subsection 2 of section 33-

24-05-252, and is specifically listed in appendix XXIX of chapter 33-24-05.

7. "Inorganic solid debris" are nonfriable inorganic solids that are incapable of passing through a nine and five-tenths millimeter standard sieve that require cutting, or crushing and grinding in mechanical sizing equipment prior to stabilization, limited to the following inorganic or metal materials:

   a. Metal slags, either dross or scoria.

   b. Glassified slag.

   c. Glass.

   d. Concrete, excluding cementitious or pozzolanic stabilized hazardous wastes.

   e. Masonry and refractory bricks.

   f. Metal cans, containers, drums, or tanks.

   g. Metal nuts, bolts, pipes, pumps, valves, appliances, or industrial equipment.

   h. Scrap metal as defined in subdivision f of subsection 1 of section 33-24-02-01.

8. "Land disposal" means placement in or on the land, except in a corrective action management unit, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault, or bunker intended for disposal purposes.

9. "Nonwastewaters" are wastes that do not meet the criteria for wastewaters in subsection 8.

10. "Polychlorinated biphenyls or PCBs" are halogenated organic compounds defined in accordance with 40 CFR 761.3.

11. "Underlying hazardous constituent" means any ~~regulated constituent present at levels above the F039 constituent-specific treatment standard at the point of generation of the hazardous waste.~~ constituent listed in section 33-24-05-288, table universal treatment standards, except zinc, which can reasonably be expected to be present at the point of generation of the hazardous waste, at a concentration above the constituent-specific universal treatment standards treatment standard.

12. "Wastewaters" are wastes that contain less than one percent by weight total organic carbon (TOC) and less than one percent by weight total suspended solids.~~, with the following exceptions:~~

~~a. F001, F002, F003, F004, F005 wastewaters are solvent-water mixtures that~~

~~contain less than one percent by weight total organic carbon or less than one percent by weight total F001, F002, F003, F004, F005 solvent constituents listed in section 33-24-05-281, table CCWE.~~

~~b. K011, K013, K014 wastewaters contain less than five percent by weight total organic carbon and less than one percent by weight total suspended solids, as generated.~~

~~c. K103 and K104 wastewaters contain less than four percent by weight total organic carbon and less than one percent by weight total suspended solids.~~

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994n; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-252. Dilution prohibited as a substitute for treatment.

1. Except as provided in subsection 2, no generator, transporter, handler, or owner or operator of a treatment, storage, or disposal facility ~~may~~ shall in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with sections 33-24-05-280 through 33-24-05-289, to circumvent the effective date of a prohibition in sections 33-24-05-270 through 33-24-05-279, to otherwise avoid a prohibition in sections 33-24-05-270 through 33-24-05-279, or to circumvent a land disposal prohibition imposed by Resource Conservation and Recovery Act section 3004.

2. Dilution of wastes that are hazardous only because they exhibit a characteristic in ~~a~~ treatment ~~system~~ systems which include land-based units which ~~treats~~ treat wastes subsequently discharged to a water of the United States pursuant to a permit issued under section 402 of the Clean Water Act, or which treat wastes in a Clean Water Act-equivalent treatment system, or which ~~treats~~ treat wastes for the purposes of pretreatment requirements under section 307 of the Clean Water Act is not impermissible dilution for purposes of this section unless a method other than DEACT has been specified in section 33-24-05-280 as the treatment standard, ~~in section 33-24-05-282,~~ or unless the waste is a D003 reactive cyanide wastewater or nonwastewater.

3. Combustion of the hazardous waste codes listed in appendix XXIX is prohibited, unless the waste, at the point of generation, or after any bona fide treatment such as cyanide destruction prior to combustion, can be demonstrated to comply with one or more of the following criteria (unless otherwise specifically prohibited from combustion):

   a. The waste contains hazardous organic constituents or cyanide at levels exceeding the constituent-specific treatment standard specified in section 33-24-05-288;

b. The waste consists of organic, debris-like materials (for example, wood, paper, plastic, or cloth) contaminated with an inorganic metal-bearing hazardous waste;

c. The waste, at point of generation, has reasonable heating value such as greater than or equal to five thousand British thermal units per pound;

d. The waste is cogenerated with wastes for which combustion is a required method of treatment;

e. The waste is subject to federal and state requirements necessitating reduction of organics, including biological agents; or

f. The waste contains greater than one percent total organic carbon (TOC).

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-253. Treatment surface impoundment exemption.

1. ~~Wastes which are otherwise prohibited from land disposal under sections 33-24-05-250 through 33-24-05-300 may be treated in a surface impoundment or series of impoundments provided that:~~

~~a. Treatment of such wastes occurs in the impoundments;~~

~~b. The following conditions are met:~~

~~(1) Sampling and testing. For wastes with treatment standards in sections 33-24-05-280 through 33-24-05-289 or prohibition levels in sections 33-24-05-270 through 33-24-05-279, or both, or Resource Conservation and Recovery Act section 3004(d), the residues from treatment are analyzed as specified in section 33-24-05-256 or 33-24-05-272, to determine if they meet applicable treatment standards or where no treatment standards have been established for the waste, the applicable prohibition levels. The sampling methods specified in the waste analysis plan under section 33-24-05-04 must be designed such that representative samples of the sludge and the supernatant are tested separately rather than mixed to form homogenous samples.~~

~~(2) Removal. The following treatment residues, including any liquid waste, must be removed at least annually: residues which do not meet the treatment standards promulgated under sections 33-24-05-280 through 33-24-05-289; residues which do not meet the prohibition levels established under sections 33-24-05-270 through 33-24-05-279 or imposed by statute (where no treatment standards have been established); residues which are from the treatment of wastes~~

~~prohibited from land disposal under sections 33-24-05-270 through 33-24-05-279 (where no treatment standards have been established and no prohibition levels apply); or residues from managing listed wastes which are not delisted under section 33-24-01-08. However, residues which are the subject of a valid certification under section 33-24-05-257 made no later than a year after placement of the wastes in an impoundment are not required to be removed annually. If the volume of liquid flowing through the impoundment or series of impoundments annually is greater than the volume of the impoundment or impoundments, this flow-through constitutes removal of the supernatant for the purpose of this requirement.~~

~~(3) Subsequent management. Treatment residues may not be placed in any other surface impoundment for subsequent management unless the residues are the subject of a valid certification under section 33-24-05-257 which allows disposal in surface impoundments meeting the requirements of subsection 1 of section 33-24-05-257.~~

~~(4) Recordkeeping. The procedures and schedule for the sampling of impoundment contents, the analysis of test data, and the annual removal of residues which do not meet the treatment standards or prohibition levels (where no treatment standards have been established), or which are from the treatment of waste prohibited from land disposal under sections 33-24-05-270 through 33-24-05-279 (where no treatment standards have been established and no prohibition levels apply), must be specified in the facility's waste analysis plan as required under section 33-24-05-04.~~

~~c. The impoundment meets the design requirements of subsection 3 of section 33-24-05-116~~ 119~~, regardless that the unit may not be new, expanded, or a replacement, and be in compliance with the applicable ground water monitoring requirements of chapter 33-24-05 unless:~~

~~(1) Exempted pursuant to subsection 4 or 5 of section 33-24-05-116~~ 119~~;~~

~~(2) Upon application by the owner or operator, the department, after notice and opportunity to comment has granted a waiver of the requirements on the basis that the surface impoundment:~~

~~(a) Has at least one liner, for which there is no evidence that such liner is leaking;~~

~~(b) Is located more than one quarter mile from an underground source of drinking water; and~~

~~(c) Is in compliance with generally applicable ground water monitoring requirements for facilities with permits; or~~

~~(3) Upon application by the owner or operator, the department, after notice of an opportunity to comment, has granted a modification to the requirements on the basis of a demonstration that the surface~~

~~impoundment is located, designed, and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.~~

~~d. The owner or operator submits to the department a written certification that the requirements of subdivision c of subsection 1 of section 33-24-05-253 have been met and submits a copy of the waste analysis plan required under subdivision b of subsection 1 of section 33-24-05-253. The following certification is required: "I certify under penalty of law that the requirements of subdivision c of subsection 1 of section 33-24-05-253 have been met for all surface impoundments and used to treat restricted wastes. I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."~~ No generator, transporter, handler, or owner or operator of a treatment, storage, or disposal facility shall in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with sections 33-24-05-280 through 33-24-05-289, to circumvent the effective date of a prohibition in sections 33-24-05-270 through 33-24-05-279, to otherwise avoid a prohibition in sections 33-24-05-270 through 33-24-05-279, or to circumvent a land disposal prohibition imposed by Resource Conservation and Recovery Act section 3004.

2. ~~Evaporation of hazardous constituents as the principal means of treatment is not considered to be treatment for purposes of an exemption under this section.~~ Dilution of wastes that are hazardous only because they exhibit a hazardous characteristic in a treatment system which treats wastes subsequently discharged to a water of the United States pursuant to a permit issued under section 402 of the Clean Water Act, or which treats wastes for the purposes of pretreatment requirements under section 307 of the Clean Water Act, or zero discharge systems with wastewater treatment equivalent to these systems, is not impermissible dilution, so long as the section 33-24-05-288 universal treatment standards are met at the point of discharge, or at a prior point of compliance specified under a Clean Water Act permit, for all underlying hazardous constituents reasonably expected to be present at the point of generation of the hazardous waste.

3. Combustion of the hazardous waste codes listed in appendix XXIX is prohibited, unless the waste, at the point of generation, or after any bona fide treatment such as cyanide destruction prior to combustion, can be demonstrated to comply with one or more of the following criteria, unless otherwise specifically prohibited from combustion:

   a. The waste contains hazardous organic constituents or cyanide at levels exceeding the constituent-specific treatment standard specified in section 33-24-05-288;

   b. The waste consists of organic, debris-like materials (for example, wood, paper, plastic, or cloth) contaminated with an inorganic metal-bearing hazardous waste;

c. The waste, at point of generation, has reasonable heating value such as greater than or equal to five thousand British thermal units per pound;

d. The waste is co generated with wastes for which combustion is a required method of treatment;

e. The waste is subject to requirements necessitating reduction of organics, including biological agents; or

f. The waste contains greater than one percent total organic carbon (TOC).

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-254. Procedures for case-by-case extensions for an effective date.

1. Any person who generates, treats, stores, or disposes of a hazardous waste may submit an application to the administrator for an extension to the effective date of any applicable restriction established under sections 33-24-05-270 through 33-24-05-279. The applicant shall demonstrate the following:

   a. The applicant has made a good faith effort to locate and contract with treatment, recovery, or disposal facilities nationwide to manage the applicant's waste in accordance with the effective date of the applicable restrictions established under sections 33-24-05-270 through 33-24-05-279;

   b. The applicant has entered into a binding contractual commitment to construct or otherwise provide alternative treatment, recovery, (~~e.g.,~~ for example, recycling), or disposal capacity that meets the treatment standards specified in sections 33-24-05-280 through 33-24-05-289 or, where treatment standards have not been specified, such treatment, recovery, or disposal capacity is protective of human health and the environment;

   c. Due to circumstances beyond the applicant's control, such alternative capacity cannot reasonably be made available by the applicable effective date. This demonstration may include a showing that the technical and practical difficulties associated with providing the alternative capacity will result in the capacity not being available by the applicable effective date;

   d. The capacity being constructed or otherwise provided by the applicant will be sufficient to manage the entire quantity of waste that is the subject of the application;

   e. The applicant provides a detailed schedule for obtaining required operating and construction permits or an outline of how and when

alternative capacity will be available;

f. The applicant has arranged for adequate capacity to manage the applicant's waste during an extension and has documented in the application the location of all sites at which the waste will be managed; and

g. Any waste managed in a surface impoundment or landfill during the extension period will meet the requirements of subdivision b of subsection 8.

2. An authorized representative signing an application described under subsection 1 shall make the following certification: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

3. After receiving an application for an extension, the administrator may request any additional information which the administrator deems as necessary to evaluate the application.

4. An extension will apply only to the waste generated at the individual facility covered by the application and will not apply to restricted waste from any other facility.

5. On the basis of the information referred to in subsection 1, after notice and opportunity for comment, and after consultation with appropriate state agencies in all affected states, the administrator may grant an extension of up to one year from the effective date. The administrator may renew this extension for up to one additional year upon the request of the applicant if the demonstration required in subsection 1 can still be made. In no event will an extension extend beyond twenty-four months from the applicable effective date specified in sections 33-24-05-270 through 33-24-05-279. The length of any extension authorized will be determined by the administrator based on the time required to construct or obtain the type of capacity needed by the applicant as described in the completion schedule discussed in subdivision e of subsection 1. The administrator will give public notice of the intent to approve or deny a petition and provide an opportunity for public comment. The final decision on a petition will be published in the federal register.

6. Any person granted an extension under this section shall immediately notify the administrator as soon as that person has knowledge of any change in the conditions certified to in the application.

7. Any person granted an extension under this section shall submit written progress reports at intervals designated by the administrator. Such reports must describe the overall progress made toward constructing or otherwise providing alternative treatment, recovery, or disposal capacity; must identify

any event which may cause or has caused a delay in the development of the capacity; and must summarize the steps taken to mitigate the delay. The administrator can revoke an extension at any time if the applicant does not demonstrate a good faith effort to meet the schedule for completion, if the environmental protection agency denies or revokes any required permit, if conditions certified in the application change, or for any violation of this chapter.

8. ~~Whenever~~ When the administrator establishes an extension to an effective date under this section, during the period for which such extension is in effect:

   a. The storage restrictions under subsection 1 of section 33-24-05-290 do not apply; and

   b. Such hazardous waste may be disposed in a landfill or surface impoundment only if such unit is in compliance with the technical requirements of the following provisions regardless of whether such unit is existing, new, or a replacement or lateral expansion.

      (1) The landfill, if in interim status, is in compliance with the requirements of subsection 5 of section 33-24-06-16; or

      (2) The landfill, if permitted, is in compliance with the requirements of sections 33-24-05-47 through 33-24-05-58 and subsections 3, 4, and 5 of section 33-24-05-177; or

      (3) The surface impoundment, if in interim status, is in compliance with the requirements of sections 33-24-05-47 through 33-24-05-58, subsections 1, 3, and 4 of section 33-24-05-~~116~~ 119, and Resource Conservation and Recovery Act section 3005(j)(1); or

      (4) The surface impoundment, if permitted, is in compliance with the requirements of sections 33-24-05-47 through 33-24-05-58 and subsections 3, 4, and 5 of section 33-24-05-~~116~~ 119; or

      (5) The surface impoundment, if newly subject to Resource Conservation and Recovery Act section 3005(j)(1) due to the promulgation of additional listings or characteristics for the identification of hazardous waste, is in compliance with the requirements of subsection 5 of section 33-24-06-16 (subpart F of part 265 of the 40 CFR) within twelve months after the promulgation of additional listings or characteristics of hazardous waste, and with the requirements of subsection 5 of section 33-24-06-16 (section 265.221 (a), (c), and (d) of the 40 CFR) within forty-eight months after the promulgation of additional listings or characteristics of hazardous waste. If a national capacity variance is granted, during the period the variance is in effect, the surface impoundment, if newly subject to Resource Conservation and Recovery Act section 3005(j)(1) due to the promulgation of additional listings or characteristics of hazardous waste, is in compliance with the requirements of subsection 5 of section 33-24-06-16 (subpart F of part 265 of the

40 CFR) within twelve months after the promulgation of additional listings or characteristics of hazardous waste, and with the requirements of subsection 5 of section 33-24-06-16 (section 265.221 (a), (c), and (d) of the 40 CFR) within forty-eight months after the promulgation of additional listings or characteristics of hazardous waste; or

(6) The landfill, if disposing of containerized liquid hazardous wastes containing polychlorinated biphenyls of concentrations greater than or equal to fifty parts per million but less than five hundred parts per million, is also in compliance with the requirements of 40 CFR 761.75 and this article.

9. Pending a decision on an application, the applicant is required to comply with all restrictions on land disposal under this part once the effective date for the waste has been reached.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-255. Petitions to allow land disposal of a waste prohibited under sections 33-24-05-270 through 33-24-05-279.

1. Any person seeking an exemption from a prohibition under sections 33-24-05-270 through 33-24-05-279 for the disposal of a restricted hazardous waste in a particular unit or units must submit a petition to the administrator demonstrating, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous. The demonstration must include the following components:

   a. An identification of the specific waste and the specific unit for which the demonstration will be made;

   b. A waste analysis to describe fully the chemical and physical characteristics of the subject waste;

   c. A comprehensive characterization of the disposal unit site including an analysis of background air, soil, and water quality;

   d. A monitoring plan that detects migration at the earliest practicable time; and

   e. Sufficient information to assure the administrator that the owner or operator of a land disposal unit receiving restricted wastes will comply with other applicable federal, state, and local laws.

2. The demonstration referred to in subsection 1 must meet the following

criteria:

a. All waste and environmental sampling, test, and analysis data must be accurate and reproducible to the extent that state of the art techniques allow;

b. All sampling, testing, and estimation techniques for chemical and physical properties of the waste and all environmental parameters must have been approved by the administrator;

c. Simulation models must be calibrated for the specific waste and site conditions, and verified for accuracy by comparison with actual measurements;

d. A quality assurance and quality control plan that addresses all aspects of the demonstration must be approved by the administrator; and

e. An analysis must be performed to identify and quantify any aspects of the demonstration that contribute significantly to uncertainty. This analysis must include an evaluation of the consequences of predictable future events, including, but not limited to, earthquakes, floods, severe storm events, droughts, or other natural phenomena.

3. Each petition referred to in subsection 1 must include the following:

a. A monitoring plan that describes the monitoring program installed at or around the unit to verify continued compliance with the conditions of the variance. This monitoring plan must provide information on the monitoring of the unit or the environment around the unit, or both. The following specific information must be included in the plan:

(1) The media monitored in the cases where monitoring of the environment around the unit is required;

(2) The type of monitoring conducted at the unit, in the cases where monitoring of the unit is required;

(3) The location of the monitoring station;

(4) The monitoring interval(frequency of monitoring at each station);

(5) The specific hazardous constituents to be monitored;

(6) The implementation schedule for the monitoring program;

(7) The equipment used at the monitoring station;

(8) The sampling and analytical techniques employed; and

(9) The data recording and reporting procedures.

b. Where applicable, the monitoring program described in subdivision a must be in place for a period of time specified by the administrator as part of his approval of the petition, prior to receipt of prohibited waste at the unit.

c. The monitoring data collected according to the monitoring plan specified under subdivision a must be sent to the administrator according to a format and schedule specified and approved in the monitoring plan.

d. A copy of the monitoring data collected under the monitoring plan specified under subdivision a must be kept onsite at the facility in the operating record.

e. The monitoring program specified under subdivision a meets the following criteria:

(1) All sampling, testing, and analytical data must be approved by the administrator and must provide data that is accurate and reproducible.

(2) All estimation and monitoring techniques must be approved by the administrator.

(3) A quality assurance and quality control plan addressing all aspects of the monitoring program must be provided to and approved by the administrator.

4. Each petition must be submitted to the administrator.

5. After a petition has been approved, the owner or operator must report any changes in conditions at the unit or the environment around the unit, or both, that significantly depart from the conditions described in the variance and affect the potential for migration of hazardous constituents from the units as follows:

a. If the owner or operator plans to make changes to the unit design, construction, or operation, such a change must be proposed in writing and the owner or operator must submit a demonstration to the administrator at least thirty days prior to making the change. The administrator will determine whether the proposed change invalidates the terms of the petition and will determine the appropriate response. Any change must be approved by the administrator prior to being made.

b. If the owner or operator discovers that a condition at the site which was modeled or predicted in the petition does not occur as predicted, this change must be reported, in writing, to the administrator within ten days of discovering the change. The administrator will determine whether the reported change from the terms of the petition requires further action which may include termination of waste acceptance and revocation of the petition, petition modifications, or other responses.

6. If the owner or operator determines that there is migration of hazardous constituents from the unit, the owner or operator must:

   a. Immediately suspend receipt of prohibited waste at the unit.

   b. Notify the administrator in writing, within ten days of the determination that a release has occurred.

   c. Following receipt of the notification the administrator will determine, within sixty days of receiving notification, whether the owner or operator can continue to receive prohibited waste in the unit and whether the variance is to be revoked. The administrator shall also determine whether further examination of any migration is warranted under applicable provisions of chapter 33-24-05.

7. Each petition must include the following statement signed by the petitioner or an authorized representative: (I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.)

8. After receiving a petition, the administrator may request any additional information that reasonably may be required to evaluate the demonstration.

9. If approved, the petition will apply to land disposal of the specific restricted waste at the individual disposal unit described in the demonstration and will not apply to any other restricted waste at that disposal unit, or to that specific restricted waste at any other disposal unit.

10. The administrator will give public notice in the federal register of the intent to approve or deny a petition and provide an opportunity for public comment. The final decision on a petition will be published in the federal register.

11. The term of a petition granted under this section may be no longer than the term of the hazardous waste permit if the disposal unit is operating under a hazardous waste permit, or up to a maximum of five years from the date of approval provided under subsection 7 if the unit is operating under interim status. In either case, the term of the granted petition expires upon the termination or denial of a hazardous waste permit, or upon the termination of interim status or when the volume limit of waste to be land disposed during the term of petition is reached.

12. Prior to the administrator's decision, the applicant is required to comply with all restrictions on land disposal under sections 33-24-05-250 through 33-24-05-300 once the effective date for the waste has been reached.

13. The petition granted by the administrator does not relieve the petitioner of the petitioner's responsibility in the management of hazardous waste under chapters 33-24-01 through 33-24-07.

14. Liquid hazardous wastes containing polychlorinated biphenyls of concentrations greater than or equal to five hundred parts per million are not eligible for an exemption under this section.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-256. Waste analysis and recordkeeping.

1. Except as specified in section 33-24-05-272, if a generator's waste in section 33-24-02-15 through 33-24-02-19, the generator must test his waste, or test an extract using the test method described in chapter 33-24-02, appendix II, or use knowledge of the waste, to determine if the waste is restricted from land disposal under sections 33-24-05-250 through 33-24-05-290. Except as specified in section 33-24-05-272, if a generator's waste exhibits one or more of the characteristics set out at sections 33-24-02-10 through 33-24-02-14, the generator must test an extract using the test method described in appendix ~~V~~ II of chapter 33-24-~~05~~ 02, or use knowledge of the waste, to determine if the waste is restricted from land disposal under ~~this part~~ sections 33-24-05-250 through 33-24-05-299. If the generator determines that ~~his~~ the waste ~~displays~~ exhibits the characteristic of ignitability (D001) (and is not in the high total organic compound ignitable liquids subcategory or is not treated ~~under technology codes INCIN, FSUBS,~~ by CMBST or RORGS of section 33-24-05-282, table 1), or the characteristic of corrosivity (D002), or reactivity (D003), or the characteristic of organic toxicity (D012 through D043) or any combination of these, and is prohibited under ~~section~~ sections 33-24-05-277 through 33-24-05-279 the generator must determine ~~what~~ the underlying hazardous constituents (as defined in section 33-24-05-251)~~, are reasonably expected to be present in the D001 or D002 waste.~~ in the D001, D002, or D003, or D012 through D043 wastes.

   a. If a generator determines that the generator is managing a restricted waste under this chapter and the waste does not meet the applicable treatment standards set forth in sections 33-24-05-280 through 33-24-05-289 or exceeds the applicable prohibition levels set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d), with each shipment of waste, the generator must notify the treatment or storage facility in writing of the appropriate treatment standards set forth in sections 33-24-05-280 through 33-24-05-289 and any applicable prohibition levels set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). The notice must include the following information:

      (1) Environmental protection agency/state hazardous waste number;

(2) ~~The corresponding treatment standards for wastes F001-F005, F039, wastes prohibited pursuant to section 33-24-05-272, and for underlying hazardous constituents (as defined in section 33-24-05-251), in D001 and D002 wastes if those wastes are prohibited under section 33-24-05-277. Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater (as defined in subsection 6 of section 33-24-05-251) or nonwastewater (as defined in subsection 4 of section 33-24-05-251) category, the applicable subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanide), and the hazardous waste management rules where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in section 33-24-05-282, the applicable five-letter treatment code found in table 1 of section 33-24-05-282 (e.g., INCIN, WETOX) also must be listed on the notification;~~ The waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 through F005, F039, D001, D002, D003, and D012 through D043. Generators must also include whether the waste is a nonwastewater or wastewater (as defined in subsections 4 and 6 of section 33-24-05-251), and indicate the subcategory of the waste (such as "D003 reactive cyanide"), if applicable;

(3) The manifest number associated with the shipment of waste;

(4) For hazardous debris, the contaminants subject to treatment as provided by subsection 2 of section 33-24-05-285 and the following statement: "This hazardous debris is subject to the alternative treatment standards of section 33-24-05-285"; ~~and~~

(5) Waste analysis data, where available~~.~~ ; and

(6) The date the waste is subject to the prohibitions.

b. If a generator determines that he is managing a restricted waste under ~~this chapter~~ sections 33-24-05-250 through 33-24-05-290, and determines that the waste can be land disposed without further treatment, with each shipment of waste he must submit, to the treatment, storage, or land disposal facility, a notice and a certification stating that the waste meets the applicable treatment standards set forth in sections 33-24-05-280 through 33-24-05-289 and the applicable prohibition levels set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). Generators of hazardous debris that is excluded from the definition of hazardous waste under subdivision b of subsection 5 of section 33-24-02-03 (~~i.e.,~~ for example, debris that the ~~director~~ department has determined does not contain hazardous waste), however, are not subject to these notification and certification requirements.

(1) The notice must include the following information:

(a) Environmental protection agency/state hazardous waste number.

(b) ~~The corresponding treatment standards for wastes F001-F005, F039, and wastes prohibited pursuant to section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater (as defined in subsection 6 of section 33-24-05-251) or nonwastewater (as defined in subsection 4 of section 33-24-05-251) category, the applicable subdivisions made within a waste code based on waste specific criteria (such as D003 reactive cyanides), and the hazardous waste management rules where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in section 33-24-05-282, the applicable five-letter treatment code found in table 1 of section 33-24-05-282 (e.g., INCIN, WETOX) also must be listed on the notification~~ The waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 through F005, F039, D001, D002, D003 and D012 through D043. Generators must also include whether the waste is a nonwastewater or wastewater (as defined in subsections 4 and 6 of section 33-24-05-251), and indicate the subcategory of the waste (such as "D003 reactive cyanide"), if applicable.

(c) The manifest number associated with the shipment of waste.

(d) Waste analysis data, where available.

(2) The certification must be signed by an authorized representative and must state the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in sections 33-24-05-280 through 33-24-05-289 and all applicable prohibitions set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

c. If a generator's waste is subject to an exemption from a prohibition on the type of land disposal methods utilized for the wastes (such as, but not limited to, a case-by-case extension under section 33-24-05-254, an exemption under section 33-24-05-255, or a nationwide capacity variance under sections 33-24-05-270 through 33-24-05-279), with each shipment of waste the generator must submit a notice to the facility receiving his waste stating that the waste is not prohibited from land disposal. The

notice must include the following information:

(1) Environmental protection agency/state hazardous waste number~~.~~;

(2) ~~The corresponding treatment standards for wastes F001-F005, F039, and wastes prohibited pursuant to section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater (as defined in subsection 6 of section 33-24-05-251) or nonwastewater (as defined in subsection 4 of section 33-24-05-251) category, the applicable subdivisions made within a waste code based on waste specific criteria (such as D003 reactive cyanides), and the hazardous waste management rules where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in section 33-24-05-282, the applicable five-letter treatment code found in table 1 of section 33-24-05-282 (e.g., INCIN, WETOX) also must be listed on the notification.~~ The waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 through F005, F039, D001, D002, D003, and D012 through D043. Generators must also include whether the waste is a nonwastewater or wastewater (as defined in subsections 4 and 6 of section 33-24-05-251), and indicate the subcategory of the waste (such as "D003 reactive cyanide"), if applicable;

(3) The manifest number associated with the shipment of waste;

(4) Waste analysis data, where available;

(5) For hazardous debris~~, the contaminants subject to treatment as provided by subsection 2 of section 33-24-05-285 and the following statement: "This hazardous debris is subject to the alternative treatment standards of section 33-24-05-285"; and~~ when using the alternative treatment technologies provided by section 33-24-05-285:

(a) The contaminants subject to treatment, as described in subsection 2 of section 33-24-05-285; and

(b) An indication that these contaminants are being treated to comply with section 33-24-05-285.

(6) ~~The date the waste is subject to the prohibitions.~~ For hazardous debris when using the treatment standards for the contaminating wastes in section 33-24-05-280: the requirements described in paragraphs 1, 2, 3, 4, and 7 of subdivision c of subsection 1; and

(7) The date the waste is subject to the prohibtions.

d. If a generator is managing prohibited waste in tanks, containers, or containment buildings regulated under section 33-24-03-12, and is

treating such waste in such tanks, containers, or containment buildings to meet applicable treatment standards under sections 33-24-05-280 through 33-24-05-289, the generator must develop and follow a written waste analysis plan which describes the procedures the generator will carry out to comply with the treatment standards. (Generators treating hazardous debris under the alternative treatment standards of table 1 in section 33-24-05-285, however, are not subject to these waste analysis requirements.) The plan must be kept onsite in the generator's records, and the following requirements must be met:

(1) The waste analysis plan must be based on a detailed chemical and physical analysis of a representative sample of the prohibited wastes being treated, and contain all information necessary to treat the wastes in accordance with the requirements of sections 33-24-05-250 through 33-24-05-290, including the selected testing frequency.

(2) Such plan must be filed with the department a minimum of thirty days prior to the treatment activity, with delivery verified.

(3) Wastes shipped offsite pursuant to this ~~paragraph~~ subdivision must comply with the notification requirements of subdivision b of subsection 1 of section 33-24-05-257.

e. If a generator determines whether the waste is restricted based solely on the generator's knowledge of the waste, all supporting data used to make this determination must be retained onsite in the generator's files. If a generator determines whether the waste is restricted based on testing this waste or an extract developed using the test method described in appendix II of chapter 33-24-02, all waste analysis data must be retained onsite in the generator's files.

f. If a generator determines that the generator is managing a restricted waste that is excluded from the definition of hazardous or solid waste or exempt under sections 33-24-02-02 through 33-24-02-06 subsequent to the point of generation, the generator must place a one-time notice stating such generation, subsequent exclusion from the definition of hazardous or solid waste or exemption from article 33-24, and the disposition of the waste, in the facility's file.

g. Generators must retain onsite a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to this section for at least five years from the date that the waste that is the subject of such documentation was last sent to onsite or offsite treatment, storage, or disposal. The five-year record retention is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the department. The requirements of this paragraph apply to solid wastes even when the hazardous characteristic is removed prior to disposal, or when the waste is excluded from the definition of hazardous or solid waste under sections 33-24-02-02 through 33-24-02-06, or exempted from article 33-24, subsequent to the point of generation.

h. If a generator is managing a lab pack that contains none of the wastes ~~waste~~ identified in appendix VIII and wishes to use the alternative treatment standards under subsection 3 of section 33-24-05-282, with each shipment of waste, the generator must submit a notice to the treatment facility in accordance with subdivision a of subsection 1, except that underlying hazardous constituents need not be determined. The generator must also comply with the requirements in subdivisions e and f of subsection 1, and must submit the following certification, which must be signed by an authorized representative:

I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack contains only the wastes specified in appendix VIII of chapter 33-24-05 or solid wastes not subject to regulation under chapter 33-24-02. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment.

i. ~~If a generator is managing a lab pack that contains organic wastes specified in appendix IX and wishes to use the alternative treatment standards under section 33-24-05-282, with each shipment of waste the generator must submit a notice to the treatment facility in accordance with subdivision a of subsection 1. The generator also must comply with the requirements in subdivisions e and f of subsection 1 and must submit the following certification which must be signed by an authorized representative:~~

~~I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste and that the lab pack contains only organic waste specified in appendix IX to chapter 33-24-05 or solid wastes not subject to regulation under chapter 33-24-02. I am aware that there are significant penalties for submitting a false certification including the possibility of fine or imprisonment.~~ [Reserved]

j. Small quantity generators with tolling agreements pursuant to subsection 5 of section 33-24-03-04 must comply with the applicable notification and certification requirements of subsection 1 for the initial shipment of the waste subject to the agreement. Such generators must retain onsite a copy of the notification and certification, together with the tolling agreement, for at least three years after termination or expiration of the agreement. The three-year record retention period is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the department.

2. Treatment facilities must test their wastes according to the frequency specified in their waste analysis plans as required by section 33-24-05-04. Such testing must be performed as provided in subdivisions a, b, and c of this subsection.

a. For wastes with treatment standards expressed as concentrations in the waste extract (section 33-24-05-281), the owner or operator of the

treatment facility must test the treatment residues, or an extract of such residues developed using the test method described in appendix II of chapter 33-24-02, to assure that the treatment residues or extract meet the applicable treatment standards.

b. For wastes that are prohibited under section 33-24-05-272 of this chapter or Resource Conservation and Recovery Act section 3004(d) but not subject to any treatment standards under sections 33-24-05-280 through 33-24-05-289, the owner or operator of the treatment facility must test treatment residues according to the generator testing requirements specified in section 33-24-05-272 to assure that the treatment residues comply with the applicable prohibitions.

c. For wastes with treatment standards expressed as concentrations in the waste (section 33-24-05-283), the owner or operator of the treatment facility must test the treatment residues (not an extract of such residues) to assure that the treatment residues meet the applicable treatment standards.

d. A notice must be sent with each waste shipment to the land disposal facility which includes the following information, except that debris excluded from the definition of hazardous waste under subsection 5 of section 33-24-02-03 (~~i.e.,~~ for example debris treated by an extraction or destruction technology provided by table 1 in section 33-24-05-285, and debris that the director has determined does not contain hazardous waste) is subject to the notification and certification requirements of subsection 4 rather than these notification requirements:

(1) Environmental protection agency/state hazardous waste number.

(2) ~~The corresponding treatment standards for wastes F001-F005, F039, wastes prohibited pursuant to section 33-24-05-272, and for underlying hazardous constituents (as defined in section 33-24-05-251), in D001 and D002 wastes if those wastes are prohibited under section 33-24-05-277. Treatment standards for all other restricted wastes must either be included, or be referenced by including on the notification the applicable wastewater (as defined in subsection 6 of section 33-24-05-251) or nonwastewater (as defined in subsection 4 of section 33-24-05-251) category, the applicable subdivision made within a waste code based on waste-specific criteria (such as D003 reactive cyanide), and the hazardous waste management rules where the applicable treatment standard appears. Where the applicable treatment standards are expressed as specified technologies in section 33-24-05-282, the applicable five-letter treatment code found in table 1 of section 33-24-05-282 (e.g., INCIN, WETOX) also must be included on the notification~~ The waste constituents to be monitored, if monitoring will not include all regulated constituents, for wastes F001 through F005, F039, D001, D002, D003, and D012 through D043. Generators must also include whether the waste is a nonwastewater or wastewater (as defined in subsections 4 and 6 of section 33-24-05-251), and indicate the subcategory of

the waste (such as D003 reactive cyanide), if applicable.

(3) The manifest number associated with the shipment of waste.

(4) Waste analysis data, where available.

e. The treatment facility must submit a certification with each shipment of waste or treatment residue of a restricted waste to the land disposal facility stating that the waste or treatment residue has been treated in compliance with the applicable performance standards specified in sections 33-24-05-280 through 33-24-05-289 and the applicable prohibitions set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). Debris excluded from the definition of hazardous waste under subsection 5 of section 33-24-02-03 (~~i.e.,~~ for example, debris treated by an extraction or destruction technology provided by table 1 in section 33-24-05-285, and debris that the department has determined does not contain hazardous waste), however, is subject to the notification and certification requirements of subsection 4 rather than the certification requirements of this subdivision.

(1) For wastes with treatment standards expressed as concentrations in the waste extract or in the waste (section 33-24-05-281 or 33-24-05-283), or for wastes prohibited under section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d) which are not subject to any treatment standards under sections 33-24-05-280 through 33-24-05-289, the certification must be signed by an authorized representative and must state the following:

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance level specified in sections 33-24-05-280 through 33-24-05-289, and all applicable prohibitions set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification including the possibility of fine and imprisonment.

(2) For wastes with treatment standards expressed as technologies (section 33-24-05-282), the certification must be signed by an authorized representative and must state the following:

I certify under penalty of law that the waste has been treated in accordance with the requirements of section 33-24-05-282. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

(3) For waste with treatment standards expressed as concentration in the

waste pursuant to section 33-24-05-283, if compliance with the treatment standards in sections 33-24-05-280 through 33-24-05-289 is based in part or in whole on the analytical detection limit alternative specified in subsection 3 of section 33-24-05-283, the certification also must state the following:

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with sections 33-24-05-144 through 33-24-05-151, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

(4) For characteristic wastes D001, D002, D003, and D012 through D043 that are: subject to the treatment standards in section 33-24-05-280 (other than those expressed as a required method of treatment); that are reasonably expected to contain underlying hazardous constituents as defined in subsection 9 of section 33-24-05-251; are treated onsite to remove the hazardous characteristic; and are then sent offsite for treatment of underlying hazardous constituents, the certification must state the following:

I certify under penalty of law that the waste has been treated in accordance with the requirements of section 33-24-05-280 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

(5) For characteristic wastes D001, D002, D003, and D012 through D043 that contain underlying hazardous constituents as defined in subsection 9 of section 33-24-05-251 that are treated onsite to remove the hazardous characteristic and to treat underlying hazardous constituents to levels in section 33-24-05-288 universal treatment standards, the certification must state the following:

I certify under penalty of law that the waste has been treated in accordance with the requirements of section 33-24-05-280 to remove the hazardous characteristic, and that underlying hazardous constituents, as defined in section 33-24-05-251, have been treated onsite to meet the section 33-24-05-288 universal treatment standards. I am aware that there are significant penalties for submitting a false certification,

including the possibility of fine and imprisonment.

f. If the waste or treatment residue will be further managed at a different treatment or storage facility, the treatment, storage, or disposal facility sending the waste or treatment residue offsite must comply with the notice and certification requirements applicable to generators under this chapter.

g. Where the wastes are recyclable materials used in a manner constituting disposal subject to the provisions of subsection 2 of section 33-24-05-201 regarding treatment standards and prohibition levels, the owner or operator of a treatment facility, ~~e.g.,~~ for example, the recycler is not required to notify the receiving facility, pursuant to subdivision d of subsection 2. With each shipment of such wastes, the owner or operator of the recycling facility must submit a certification described in subdivision e of subsection 2, and a notice which includes the information listed in subdivision d of subsection 2 except the manifest number to the department. The recycling facility also must keep records of the name and location of each entity receiving the hazardous waste-derived product.

3. Except where the owner or operator is disposing of any waste that is a recyclable material used in a manner constituting disposal pursuant to subsection 2 of section 33-24-05-201, the owner or operator of any land disposal facility disposing any waste subject to restrictions under this part must:

   a. Have copies of the notice and certifications specified in subsection 1 or 2, and the certification specified in section 33-24-05-257 if applicable.

   b. Test the waste, or an extract of the waste or treatment residue developed using the test method described in appendix II of chapter 33-24-02 or using any methods required by generators under section 33-24-05-272, to assure that the wastes or treatment residues are in compliance with the applicable treatment standards set forth in sections 33-24-05-280 through 33-24-05-289 and all applicable prohibitions set forth in section 33-24-05-272 or in Resource Conservation and Recovery Act section 3004(d). Such testing must be performed according to the frequency specified in the facility's waste analysis plan as required by section 33-24-05-04.

4. Generators or treaters who first claim that hazardous debris is excluded from the definition of hazardous waste under subsection 5 of section 33-24-02-03 (~~i.e.,~~ for example, debris treated by an extraction or destruction technology provided by table 1 in section 33-24-05-285, and debris that the director has determined does not contain hazardous waste) are subject to the following notification and certification requirements:

   a. A one-time notification must be submitted to the department including the following information:

(1) The name and address of the subtitle D facility receiving the treated debris;

(2) A description of the hazardous debris as initially generated, including the applicable environmental protection agency/state hazardous waste numbers; and

(3) For debris excluded under subdivision a of subsection 5 of section 33-24-02-03, the technology from table 1 in section 33-24-05-285, used to treat the debris.

b. The notification must be updated if the debris is shipped to a different facility, and, for debris excluded under subdivision a of subsection 5 of section 33-24-02-02, if a different type of debris is treated or if a different technology is used to treat the debris.

c. For debris excluded under subdivision a of subsection 5 of section 33-24-02-03, the owner or operator of the treatment facility must document and certify compliance with the treatment standards of table 1 in section 33-24-05-285, as follows:

(1) Records must be kept of all inspections, evaluations, and analyses of treated debris that are made to determine compliance with the treatment standards;

(2) Records must be kept of any data or information the treater obtains during treatment of the debris that identifies key operating parameters of the treatment unit; and

(3) For each shipment of treated debris, a certification of compliance with the treatment standards must be signed by an authorized representative and placed in the facility's files. The certification must state the following: "I certify under penalty of law that the debris has been treated in accordance with the requirements of section 33-24-05-285. I am aware that there are significant penalties for making a false certification, including the possibility of fine and imprisonment".

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-257. [Reserved]

33-24-05-258. Special rules regarding wastes that exhibit a characteristic.

1. The initial generator of a solid waste must determine each environmental protection agency/state hazardous waste number (waste code) applicable to the waste in order to determine the applicable treatment standards under sections

33-24-05-280 through 33-24-05-289. For purposes of sections 33-24-05-250 through 33-24-05-299, the waste will carry the waste code for any applicable listing under sections 33-24-02-15 through 33-24-02-19. In addition, the waste will carry one or more of the waste codes under sections 33-24-02-10 through 33-24-02-14, where the waste exhibits a characteristic, except in the case when the treatment standards for the waste code listed in sections 33-24-02-15 through 33-24-02-19 operates in lieu of the ~~standards~~ treatment standard for the waste code under sections 33-24-02-10 through 33-24-02-14, as specified in subsection 2. If the generator determines that his waste displays ~~the~~ a hazardous characteristic ~~of ignitability (D001) (and is not in the high total organic compound ignitable liquids subcategory or is not treated under technology codes INCIN, FSUBS, or RORGS of section 33-24-05-282, table 1), or the characteristic of corrosivity (D002), and is prohibited under section 33-24-05-277, the generator must determine what underlying hazardous constituents (as defined in section 33-24-05-251), are reasonably expected to be present in the D001 or D002 waste.~~ (and the waste is not a D004 through D011 waste, a high total organic carbon D001, or is not treated by CMBST, or RORGS of section 33-24-05-282, table 1), the generator must determine what underlying hazardous constituents (as defined in section 33-24-05-251), are reasonably expected to be present above the universal treatment standards specified in section 33-24-05-288.

2. Where a prohibited waste is both listed under sections 33-24-02-15 through 33-24-02-19 and exhibits a characteristic under sections 33-24-02-10 through 33-24-02-14, the treatment standard for the waste code listed in sections 33-24-02-15 through 33-24-02-19 will operate in lieu of the standard for the waste code under sections 33-24-02-10 through 33-24-02-14 provided that the treatment standard for the listed waste includes a treatment standard for the constituent that causes the waste to exhibit the characteristic. Otherwise, the waste must meet the treatment standards for all applicable listed and characteristic waste codes.

3. In addition to any applicable standards determined from the initial point of generation, no prohibited waste which exhibits a characteristic under sections 33-24-02-10 through 33-24-02-14 may be land disposed unless the waste complies with the treatment standards under sections 33-24-05-280 through 33-24-05-289.

4. Wastes that exhibit a characteristic are also subject to section 33-24-05-256 requirements, except that once the waste is no longer hazardous, a one-time notification and certification must be placed in the generators or treaters files and sent to the department~~. The notification and certification that is placed in the generators or treaters files must be updated if the process or operation generating the waste changes or if the subtitle D facility receiving the waste changes, or both. However, the generator or treater need only notify the department on an annual basis if such changes occur. Such notification and certification should be sent to the department by the end of the calendar year, but no later that December 31.~~ , except for those facilities discussed in subsection 6. The notification and certification that is placed in the generators or treaters files must be updated if the process or operation generating the waste changes or if the permitted facility receiving the waste changes, or both change. However, the generator or

treater need only notify the department on an annual basis if such changes occur. Such notification and certification should be sent to the department by the end of the calendar year, but no later than December 31st.

a. The notification must include the following information:

(1) ~~The name and address of the subtitle D facility receiving the waste shipment.~~ For characteristic wastes other than those managed onsite in a wastewater treatment system subject to the Clean Water Act, zero-dischargers engaged in Clean Water Act-equivalent treatment, or class I nonhazardous injection wells, the name and address of the permitted facility receiving the waste shipment; and

(2) ~~A description of the waste as initially generated including the applicable hazardous waste numbers, the applicable wastewater (as defined in subsection 6 of section 33-24-05-251) or nonwastewater (as defined in subsection 4 of section 33-24-05-251) category, and the subdivisions made within a waste code based on waste-specific criteria (such as D003 reactive cyanides).~~ For all characteristic wastes, a description of the waste as initially generated, including the applicable environmental protection agency/state hazardous waste numbers, treatability groups, and underlying hazardous constituents.

(3) The treatment standards applicable to the waste at the initial point of generation.

b. The certification must be signed by an authorized representative and must state the language ~~found~~ specified in ~~paragraph 1 of~~ subdivision e of subsection 2 of section 33-24-05-256.

(1) If treatment removes the characteristic but does not treat underlying hazardous constituents, then the certification found in paragraph 4 of subdivision e of subsection 2 of section 33-24-05-256 apply.

(2) [Reserved]

c. For characteristic wastes whose ultimate disposal will be into a class I nonhazardous injection well, and compliance with the treatment standards found in section 33-24-05-288 for underlying hazardous constituents is achieved through pollution prevention that meets the criteria set out at 40 CFR 148.1(d), the following information must also be included:

(1) A description of the pollution prevention mechanism and when it was implemented if already complete;

(2) The mass of each underlying hazardous constituent before pollution prevention;

(3) The mass of each underlying hazardous constituent that must be

removed, adjusted to reflect variations in mass due to normal operating conditions; and

(4) The mass reduction of each underlying hazardous constituent that is achieved.

5. For decharacterized wastes managed onsite in a wastewater treatment system subject to the Clean Water Act or zero-dischargers engaged in Clean Water Act-equivalent treatment, compliance with the treatment standards found at section 33-24-05-288 must be monitored quarterly, unless the treatment is aggressive biological treatment, in which case compliance must be monitored annually. Monitoring results must be kept in onsite files for five years.

6. For decharacterized wastes managed onsite in a wastewater treatment system subject to the Clean Water Act for which all underlying hazardous constituents (as defined in section 33-24-05-251), are addressed by a Clean Water Act permit, this compliance must be documented and this documentation must be kept in onsite files.

7. For characteristic wastes whose ultimate disposal will be into a class I nonhazardous injection well which qualifies for the de minimis exclusion described in section 33-24-05-250, information supporting that qualification must be kept in onsite files.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-259. [Reserved]

33-24-05-260. [Reserved]

33-24-05-261. [Reserved]

33-24-05-262. [Reserved]

33-24-05-263. [Reserved]

33-24-05-264. [Reserved]

33-24-05-265. Surface impoundment exemptions.

1. This section defines additional circumstances under which an otherwise prohibited waste may continue to be placed in a surface impoundment.

2. Wastes that are newly identified or listed under section 3001 after November 8, 1984, and stored in a surface impoundment that is newly subject to article 33-24 as a result of the additional identification or listing, may continue to be stored in the surface impoundment for forty-eight months after the promulgation of the additional listing or characteristic, notwithstanding that

the waste is otherwise prohibited from land disposal, provided that the surface impoundment is in compliance with the requirements of subsection 5 of section 33-24-06-16 (subpart F of part 265 of 40 CFR) within twelve months after promulgation of the new listing or characteristic.

3. Wastes that are newly identified or listed under section 3001 after November 8, 1984, and treated in a surface impoundment that is newly subject to article 33-24 as a result of the additional identification or listing, may continue to be treated in that surface impoundment, not withstanding that the waste is otherwise prohibited from land disposal, provided that surface impoundment is in compliance with the requirements of subsection 5 of section 33-24-06-16 (subpart F of part 265 of 40 CFR) within twelve months after the promulgation of the new listing or characteristic. In addition, if the surface impoundment continues to treat hazardous waste after forty-eight months from promulgation of the additional listing or characteristic, it must then be in compliance with section 33-24-05-253.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-266. [Reserved]

33-24-05-267. [Reserved]

33-24-05-268. [Reserved]

33-24-05-269. [Reserved]

33-24-05-270. Waste specific prohibitions - solvent wastes.

1. Effective November 8, 1986, the spent solvent wastes specified in section 33-24-02-16 as hazardous waste numbers F001, F002, F003, F004, and F005 are prohibited under this chapter from land disposal (except in an injection well) unless one or more of the following conditions apply:

   a. A generator of the solvent waste is a small quantity generator of one hundred to one thousand kilograms of hazardous waste per month;

   b. The solvent waste is generated from any response action taken under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or any corrective action taken under the Resource Conservation and Recovery Act except where the waste is contaminated soil or debris;

   c. The initial generator's solvent waste is a solvent water mixture, solvent containing sludge or solid, or solvent contaminated soil (non-Comprehensive Environmental Response, Compensation, and Liability Act or Resource Conservation and Recovery Act corrective action) containing less than one percent total F001-F005 solvent constituents listed in table CCWE of section 33-24-05-281; or

d. The solvent waste is a residue from treating a waste described in subdivision a, b, or c of subsection 1; or the solvent waste is a residue from treating a waste not described in subdivision a, b, or c of subsection 1 provided such residue belongs to a different treatability group than the waste as initially generated and wastes belonging to such a treatability group are described in subdivision c of subsection 1.

2. Effective November 8, 1988, the F001-F005 solvent wastes listed in subdivisions a, b, c, or d of subsection 1 are prohibited from land disposal.

3. Effective November 8, 1990, the F001-F005 solvent wastes which are contaminated soil and debris resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or a corrective action required under subtitle C of the Resource Conservation and Recovery Act and the residues from treating these wastes are prohibited from land disposal. Between November 8, 1988, and November 8, 1990, these wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

4. The requirements of subsection 1, 2, or 3 do not apply if:

   a. The wastes meet the standards of sections 33-24-05-280 through 33-24-05-289;

   b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255 with respect to those wastes and units covered by the petition; or

   c. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to those wastes and units covered by the extension.

History: Effective December 1, 1988; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-271. Waste specific prohibitions - dioxin-containing wastes.

1. Effective November 8, 1988, the dioxin-containing wastes specified in section 33-24-02-16 as hazardous waste numbers F020, F021, F022, F023, F026, F027, and F028 are prohibited from land disposal unless the following condition applies:

   a. The F020-F023 and F026-F028 dioxin-containing waste is contaminated soil and debris resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 or a corrective action taken under subtitle C of the Resource Conservation and Recovery Act.

2. Effective November 8, 1990, the F020-F023 and F026-F028 dioxin-containing

wastes listed in subdivision a of subsection 1 are prohibited from land disposal.

3. Between November 8, 1988, and November 8, 1990, wastes included in subdivision a of subsection 1 may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254 and all other applicable requirements of chapter 33-24-05.

4. The requirements of subsections 1 and 2 do not apply if:

   a. The wastes meet the standards of sections 33-24-05-280 through 33-24-05-289;

   b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition; or

   c. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-34-05-254, with respect to those wastes covered by the extension.

History: Effective December 1, 1988; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-272. Waste specific prohibitions - California list wastes.

1. The following hazardous wastes are prohibited from land disposal (except in injection wells):

   a. Liquid hazardous wastes having a pH less than or equal to two.

   b. Liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to fifty parts per million.

   c. Liquid hazardous wastes that are primarily water and contain halogenated organic compounds in total concentration greater than or equal to one thousand milligram/liter and less than ten thousand milligram/liter halogenated organic compounds.

2. [Reserved]

3. [Reserved]

4. The requirements of subsections 1 and 5 do not apply until:

   a. July 8, 1989, where the wastes are contaminated soil or debris not resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act or

a corrective action taken under subtitle C of the Resource Conservation and Recovery Act. Between July 8, 1987 and July 8, 1989, the wastes may be disposed in a landfill or surface impoundment only if such disposal is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

b. November 8, 1990, where the wastes are contaminated soil or debris resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act or a corrective action taken under subtitle C of the Resource Conservation and Recovery Act. Between November 8, 1988, and November 8, 1990, the wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

5. Effective November 8, 1988, the following hazardous wastes are prohibited from land disposal (subject to any regulations that may be promulgated with respect to disposal in injection wells):

   a. Liquid hazardous wastes that contain halogenated organic compounds in total concentration greater than or equal to one thousand milligrams/liter and are not prohibited under subdivision c of subsection 1; and

   b. Nonliquid hazardous wastes containing halogenated organic compounds in total concentration greater than or equal to one thousand milligrams/kilogram and are not wastes described in subsection 4.

6. Between July 8, 1987, and November 8, 1988, the wastes included in subdivisions a and b of subsection 5 may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

7. The requirements of subsections 1, 4, and 5 do not apply if:

   a. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition (except for liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to five hundred parts per million which are not eligible for such exemptions);

   b. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to those wastes covered by the extension;

   c. The wastes meet the applicable standards specified in sections 33-24-05-280 through 33-24-05-289 or, where treatment standards are not specified, the wastes are in compliance with the applicable prohibitions set forth in this section or Resource Conservation and Recovery Act 3004(d).

8. The prohibitions and effective dates specified in subdivision c of subsection

1 and subsections 4 and 5 do not apply where the waste is subject to prohibition under sections 33-24-05-270 through 33-24-05-279 ~~prohibition~~ and effective date for a specified halogenated organic compound (such as a hazardous waste chlorinated solvent, see (~~e.g.,~~ for example, subsection 1 of section 33-24-05-270).

9. To determine whether or not a waste is a liquid under subsections 1 and 5 and under Resource Conservation and Recovery Act section 3004(d), the following test must be used: Method 9095 (paint filter liquids test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", ~~environmental protection agency publication number~~ SW-846, as incorporated by reference in section 33-24-01-05.

10. Except as otherwise provided in this section, the waste analysis and recordkeeping requirements of section 33-24-05-256 are applicable to wastes prohibited under sections 33-24-05-250 through 33-24-05-300 or Resource Conservation and Recovery Act section 3004(d):

    a. The initial generator of a liquid hazardous waste must test the generator's waste (not an extract or filtrate) in accordance with the procedure specified in subdivision a of subsection 1 of section 33-24-02-12, or use knowledge of the waste, to determine if the waste has a pH less than or equal to two. If the liquid waste has a pH less than or equal to two, it is restricted from land disposal and all requirements of sections 33-24-05-250 through 33-24-05-300 are applicable, except as otherwise specified in this section.

    b. The initial generator of either a liquid hazardous waste containing polychlorinated biphenyls or a liquid or nonliquid hazardous waste containing halogenated organic compounds shall test the generators waste (not an extract or filtrate), or use knowledge of the waste, to determine whether the concentration levels in the waste equal or exceed the prohibition levels specified in this section. If the concentration of polychlorinated biphenyls or halogenated organic compounds in the waste is greater than or equal to the prohibition level specified in this section, the waste is restricted from land disposal and all requirements of sections 33-24-05-250 through 33-24-05-300 are applicable, except as otherwise specified in this section.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-273. Waste specific prohibitions - first third wastes.

1. Effective August 8, 1988, the wastes specified in section 33-24-02-17 hazardous waste numbers F006 (nonwastewater), K001, K004 wastes specified in subsection 1 of section 33-24-05-283, K008 wastes specified in subsection 1 of section 33-24-05-283, K016, K018, K019, K020, K021 wastes specified in

subsection 1 of section 33-24-05-283, K022 (nonwastewater), K024, K025 nonwastewaters specified in subsection 1 of section 33-24-05-283, K030, K036 (nonwastewater), K037, K044, K045, nonexplosive K046 (nonwastewater), K047, K060 (nonwastewater), K061 (nonwastewaters containing less than fifteen percent zinc), K062, non $CaSO_4$ K069 (nonwastewaters), K086 (solvent washes), K087, K099, K100 nonwastewaters specified in subsection 1 of section 33-24-05-283, K101 (wastewater), K101 (nonwastewater, low arsenic subcategory - less than one percent total arsenic), K102 (wastewater), K102 (nonwastewater, low arsenic subcategory - less than one percent total arsenic), K103, and K104 are prohibited from land disposal (except in an injection well).

a. Effective August 8, 1988, and continuing until August 7, 1990, K061 wastes containing fifteen percent zinc or greater are prohibited from land disposal pursuant to the treatment standards specified in section 33-24-05-281 applicable to K061 wastes that contain less than fifteen percent zinc.

2. Effective August 8, 1990, the waste specified in section 33-24-02-17 as hazardous waste number K071 is prohibited from land disposal.

3. Effective August 8, 1990, the waste specified in section 33-24-05-261 having a treatment standard in sections 33-24-05-280 through 33-24-05-289 based on incineration and which are contaminated soil and debris are prohibited from land disposal.

4. Between November 8, 1988, and August 8, 1990, wastes included in subsections 2 and 3 may be disposed of in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

5. The requirements of subsections 1, 2, 3, and 4 do not apply if:

a. The wastes meet the applicable standards specified in sections 33-24-05-280 through 33-24-05-289;

b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition; or

c. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to those wastes covered by the extension.

6. Between August 8, 1988, and May 8, 1990, the wastes specified ~~in 40 CFR 268.10~~ for which treatment standards under sections 33-24-05-280 through 33-24-05-289 have not been promulgated, including those wastes which are subject to the statutory prohibitions of Resource Conservation and Recovery Act section 3004(d) or codified prohibitions under section 33-24-05-272, but not including wastes subject to a treatment standard under section 33-24-05-282, are prohibited from disposal in a landfill or surface impoundment unless a demonstration and certification have been submitted.

7. To determine whether a hazardous waste ~~listed in 40 CFR 268.10~~ exceeds the applicable treatment standards specified in ~~section~~ sections 33-24-05-281 and 33-24-05-283, the initial generator must test a representative sample of the waste extract or the entire waste depending on whether the treatment standards are expressed as concentrations in the waste extract ~~of~~ or the waste or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable ~~section~~ sections 33-24-05-280 through 33-24-05-289 levels, the waste is prohibited from land disposal and all requirements of sections 33-24-05-250 through 33-24-05-300 are applicable, except as otherwise specified.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-274. Waste specific prohibitions - second third wastes.

1. The following wastes specified in section 33-24-02-16 as hazardous waste numbers F010; F024; the wastes specified in 33-24-02-17 as hazardous waste numbers K005; K007; K009 (nonwastewaters); K010; K023; K027; K028; K029 (nonwastewaters); K036 (wastewaters); K038; K039; K040; K043; K093; K094; K095 (nonwastewaters); K096 (nonwastewaters); K113; K114; K115; K116; and the wastes specified in section 33-24-02-18 as hazardous waste numbers P013; P021; P029; P030; P039; P040; P041; P043; P044; P062; P063; P071; P074; P085; P089; P094; P097; P098; P099; P104; P106; P109; P111; P121; U028; U058; U069; U087; U088; U102; U107; U221; U223; and U235 are prohibited from land disposal.

2. The following wastes specified in section 33-24-02-17 as hazardous waste numbers K009 (wastewaters), K011 (nonwastewaters), K013 (nonwastewaters), and K014 (nonwastewaters) are prohibited from land disposal except when they are underground injected pursuant to 40 CFR 148.14(f) and 148.15(d).

3. The wastes specified in section 33-24-02-16 as hazardous waste numbers F006-cyanide (nonwastewater); F008; F009; F011 (wastewaters) and F012 (wastewaters) are prohibited from land disposal.

   a. The following waste specified in section 33-24-02-16 as hazardous waste number F007 is prohibited from land disposal except when it is underground injected pursuant to 40 CFR 148.14(f).

   b. The wastes F011 (nonwastewaters) and F012 (nonwastewaters) are prohibited from land disposal pursuant to the treatment standards specified in sections 33-24-05-281 and 33-24-05-283 applicable to F011 (nonwastewaters) and F012 (nonwastewaters).

4. Effective June 8, 1991, the wastes specified in this section having a treatment standard in sections 33-24-05-280 through 33-24-05-289 based on incineration, and which are contaminated soil and debris are prohibited from land disposal.

5. Between June 8, 1989, and June 8, 1991, (for wastes F007, F008, F009, F011, and F012 between June 8, 1989, and July 8, 1989) wastes included in subsections 3 and 4 may be disposed in a landfill or surface impoundment, regardless whether such unit is a new, replacement, or lateral expansion unit, only if such unit is in compliance with the technical requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

6. The requirements of subsections 1, 2, 3, and 4 do not apply if:

   a. The wastes meet the applicable standards specified in sections 33-24-05-280 through 33-24-05-289; or

   b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255 with respect to those wastes and units covered by the petition.

7. The requirements of subsections 1, 2, and 3 do not apply if persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to those wastes covered by the extension.

8. Between June 8, 1989, and May 8, 1990, the wastes specified in section 33-24-05-262 for which treatment standards under sections 33-24-05-280 through 33-24-05-289 are not applicable, including California list wastes subject to the statutory prohibitions of Resource Conservation and Recovery Act section 3004(d) or codified prohibitions under section 33-24-05-272, are prohibited from disposal in a landfill or surface impoundment unless the wastes are the subject of a valid demonstration and certification ~~pursuant to 40 CFR 268.8~~.

9. To determine whether a hazardous waste listed ~~in 40 CFR sections 268.10, 268.11, and 268.12 exceed~~ exceeds the applicable treatment standards specified in sections 33-24-05-281 and 33-24-05-283, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable sections 33-24-05-280 through 33-24-05-289 levels, the waste is prohibited from land disposal and all requirements of sections 33-24-05-250 through 33-24-05-300 are applicable, except as otherwise specified.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-275. Waste specific prohibitions - third third wastes.

1. Effective August 8, 1990, the following wastes specified in section 33-24-02-16 as hazardous waste numbers F002 (1,1,2-trichloroethane), F005 (benzene), F005 (2-ethoxy ethanol), F005 (2-nitropropane), F006 (wastewaters), F019, F025, and F039 (wastewaters); the wastes specified in section 33-24-02-17 as hazardous waste numbers K002; K003; K004 (wastewaters); K005 (wastewaters);

K006; K008 (wastewaters); K011 (wastewaters); K013 (wastewaters); K014 (wastewaters); K015 (nonwastewaters); K017; K021 (wastewaters); K022 (wastewaters); K025 (wastewaters); K026; K029 (wastewaters); K031 (wastewaters); K032; K033; K034; K035; K041; K042; K046 (wastewaters, reactive nonwastewaters); K048 (wastewaters); K049 (wastewaters); K050 (wastewaters); K051 (wastewaters); K052 (wastewaters); K060 (wastewaters); K061 (wastewaters) and (high zinc subcategory greater than 15% zinc); K069 (wastewaters, calcium sulfate nonwastewaters); K073; K083; K084 (wastewaters); K085; K095 (wastewaters); K096 (wastewaters); K097; K098; K100 (wastewaters); K101 (wastewaters); K102 (wastewaters); K105; and K106 (wastewaters); the wastes specified in subsection 5 of section 33-24-02-18 as hazardous waste numbers P001; P002; P003; P004; P005; P006; P007; P008; P009; P010 (wastewaters); P011 (wastewaters); P012 (wastewaters); P014; P015; P016; P017; P018; P020; P022; P023; P024; P026; P027; P028; P031; P033; P034; P036 (wastewaters); P037; P038 (wastewaters); P042; P045; P046; P047; P048; P049; P050; P051; P054; P056; P057; P058; P059; P060; P064; P065 (wastewaters); P066; P067; P068; P069; P070; P072; P073; P075; P076; P077; P078; P081; P082; P084; P088; P092 (wastewaters); P093; P095; P096; P101; P102; P103; P105; P108; P110; P112; P113; P114; P115; P116; P118; P119; P120; P122; and P123; and the wastes specified in subsection 6 of section 33-24-02-18 as hazardous waste numbers U001; U002; U003; U004; U005; U006; U007; U008; U009; U010; U011; U012; U014; U015; U016; U017; U018; U019; U020; U021; U022; U023; U024; U025; U026; U027; U029; U030; U031; U032; U033; U034; U035; U036; U037; U038; U039; U041; U042; U043; U044; U045; U046; U047; U048; U049; U050; U051; U052; U053; U055; U056; U057; U059; U060; U061; U062; U063; U064; U066; U067; U068; U070; U071; U072; U073; U074; U075; U076; U077; U078; U079; U080; U081; U082; U083; U084; U085; U086; U089; U090; U091; U092; U093; U094; U095; U096; U097; U098; U099; U101; U103; U105; U106; U108; U109; U110; U111; U112; U113; U114; U115; U116; U117; U118; U119; U120; U121; U122; U123; U124; U125; U126; U127; U128; U129; U130; U131; U132; U133; U134; U135; U136 (wastewaters); U137; U138; U140; U141; U142; U143; U144; U145; U146; U147; U148; U149; U150; U151 (wastewaters); U152; U153; U154; U155; U156; U157; U158; U159; U160; U161; U162; U163; U164; U165; U166; U167; U168; U169; U170; U171; U172; U173; U174; U176; U177; U178; U179; U180; U181; U182; U183; U184; U185; U186; U187; U188; U189; U191; U192; U193; U194; U196; U197; U200; U201; U202; U203; U204; U205; U206; U207; U208; U209; U210; U211; U213; U214; U215; U216; U217; U218; U219; U220; U222; U225; U226; U227; U228; U234; U236; U237; U238; U239; U240; U243; U244; U246; U247; U248; U249; and the following waste identified as hazardous based on a characteristic alone: D001; D002; D003; D004 (wastewaters); D005; D006; D007; D008 (except for lead material stored before secondary smelting); D009 (wastewaters); D010; D011; D012; D013; D014; D015; D016; and D017 are prohibited from land disposal.

2. The following wastes specified in section 33-24-02-17 as hazardous waste numbers K048 (nonwastewaters), K049 (nonwastewaters), K050 (nonwastewaters), K051 (nonwastewaters), and K052 (nonwastewaters) are prohibited from land disposal.

3. Effective May 8, 1992, the following wastes specified in section 33-24-02-16 as hazardous waste numbers F039 (nonwastewaters); the waste specified in section 33-24-02-17 as hazardous waste numbers K031 (nonwastewaters); K084

(nonwastewaters); K101 (nonwastewaters); K102 (nonwastewaters); K106 (nonwastewaters); the wastes specified in subsection 5 of section 33-24-02-18 as hazardous waste numbers P010 (nonwastewaters); P011 (nonwastewaters); P012 (nonwastewaters); P036 (nonwastewaters); P038 (nonwastewaters); P065 (nonwastewaters); P087; and P092 (nonwastewaters); the wastes specified in subsection 6 of section 33-24-02-18 as hazardous waste numbers U136 (nonwastewaters); and U151 (nonwastewaters); and the following wastes identified as hazardous based on a characteristic alone: D004 (nonwastewaters); and D009 (nonwastewaters); and Resource Conservation and Recovery Act hazardous wastes that contain naturally occurring radioactive materials are prohibited from land disposal.

4. Effective May 8, 1992, hazardous wastes listed in 40 CFR 268.10, 268.11, and 268.12 that are mixed radioactive/hazardous wastes are prohibited from land disposal, except as provided in subsection 5.

5. Subject to applicable prohibitions in sections 33-24-05-270 through 33-24-05-272, contaminated soil and debris are prohibited from land disposal as follows:

   a. Effective May 8, 1994, ~~debris that is contaminated with wastes listed in 40 CFR 268.12, and~~ debris that is contaminated with any characteristic waste for which treatment standards are established in sections 33-24-05-280 through 33-24-05-289, are prohibited from land disposal.

   b. Effective May 8, 1994, mixed radioactive hazardous debris that is ~~contaminated with wastes listed in 40 CFR 268.12 and mixed radioactive hazardous debris that is~~ contaminated with any characteristic waste for which treatment standards are established in sections 33-24-05-280 through 33-24-05-289, are prohibited from land disposal.

   c. Subdivisions a and b of subsection 5 shall not apply where the generator has failed to make a good faith effort to locate treatment capacity suitable for its waste, has not utilized such capacity as it has found to be available, or has failed to file a report as required by subsection 7 of section 33-24-05-254 by August 12, 1993, or within ninety days after the hazardous waste is generated (whichever is later) describing the generator's efforts to locate treatment capacity. Where subdivisions a and b of subsection 5 do not apply, all wastes described in these paragraphs are prohibited from land disposal effective May 8, 1993.

   d. Effective May 8, 1993, hazardous soil contaminated with wastes specified in this section having treatment standards in sections 33-24-05-280 through 33-24-05-289 based on incineration, mercury retorting or vitrification, and soils contaminated with hazardous wastes ~~listed in 40 CFR 268.10, 268.11, and 268.12~~ that are mixed radioactive hazardous wastes, are prohibited from land disposal.

   e. When used in subdivisions a and b of subsection 5, debris is defined as follows:

(1) Debris as defined in subsection 7 of section 33-24-05-251; or

(2) Nonfriable inorganic solids that are incapable of passing through a 9.5 millimeter standard sieve that require cutting, or crushing and grinding in mechanical sizing equipment prior to stabilization, limited to the following inorganic or metal materials:

(a) Metal slags (either dross or scoria);

(b) Glassified slag;

(c) Glass;

(d) Concrete (excluding cementitious or pozzolanic stabilized hazardous wastes);

(e) Masonry and refractory bricks;

(f) Metal cans, containers, drums, or tanks;

(g) Metal nuts, bolts, pipes, pumps, valves, appliances, or industrial equipment; and

(h) Scrap metal as defined in subdivision f of subsection 3 of section 33-24-02-01.

6. Between May 8, 1990, and August 8, 1990, the wastes included in subsection 1 may be disposed of in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

7. Between May 8, 1990, and November 8, 1990, wastes included in subsection 2 may be disposed of in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

8. Between May 8, 1990, and May 8, 1992, wastes included in subsections 3, 4, and 5 may be disposed of in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

9. The requirements of subsections 1, 2, 3, 4, and 5 do not apply if:

a. The wastes meet the applicable standards specified in sections 33-24-05-280 through 33-24-05-289;

b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition;

c. The wastes meet the applicable alternate standards established pursuant

to a petition granted under section 33-24-05-284;

d. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to these wastes covered by the extension.

10. To determine whether a hazardous waste ~~listed in 40 CFR 268.10, 268.11, or 268.12~~ exceeds the applicable treatment standards specified in sections 33-24-05-281 and 33-24-05-283, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable ~~section~~ sections 33-24-05-280 through 33-24-05-289 levels, the waste is prohibited from land disposal, and all requirements of sections 33-24-05-250 through 33-24-05-300 are applicable, except as otherwise specified.

11. Effective May 8, 1993, D008 lead materials stored before secondary smelting are prohibited from land disposal. On or before March 1, 1993, the owner or operator of each secondary lead smelting facility shall submit to the department the following: A binding contractual commitment to construct or otherwise provide capacity for storing such D008 wastes prior to smelting which complies with all applicable storage standards; documentation that the capacity to be provided will be sufficient to manage the entire quantity of such D008 wastes; and a detailed schedule for providing such capacity. Failure by a facility to submit such documentation shall render such D008 managed by that facility prohibited from land disposal effective March 1, 1993. In addition, no later than July 27, 1992, the owner or operator of each facility must place in the facility record documentation of the manner and location in which such wastes will be managed pending completion of such capacity, demonstrating that such management capacity will be adequate and complies with all applicable article 33-24 requirements.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-276. Waste specific prohibitions - newly listed wastes.

1. Effective November 9, 1992, the wastes specified in section 33-24-02-17 as hazardous waste numbers K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, and K136; and the wastes specified in subsection 6 of section 33-24-02-18 as hazardous waste numbers U328, U353, and U359 are prohibited from land disposal.

2. Effective June 30, 1993, the wastes specified in section 33-24-02-16 as hazardous waste numbers F037 and F038 that are not generated from surface impoundment cleanouts or closures are prohibited from land disposal.

3. Effective June 30, 1994, the wastes specified in section 33-24-02-16 as

hazardous waste numbers F037 and F038 that are generated from surface impoundment cleanouts or closures are prohibited from land disposal.

4. Effective June 30, 1994, radioactive wastes that are mixed with hazardous wastes specified in section 33-24-02-16 as hazardous waste numbers F037 and F038; the wastes specified in section 33-24-02-10 as hazardous waste numbers K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, and K136; or the wastes specified in subsection 6 of section 33-24-02-18 as hazardous waste numbers U328, U353, and U359 are prohibited from land disposal.

5. Effective June 30, 1994, debris contaminated with hazardous wastes specified in section 33-24-02-16 as hazardous waste numbers F037 and F038; the wastes specified in section 33-24-02-17 as hazardous waste numbers K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, and K136; or the wastes specified in subsection 6 of section 33-24-02-18 as hazardous waste numbers U328, U353, and U359; and which is not contaminated with any other waste already subject to a prohibition are prohibited from land disposal.

6. Between June 30, 1992, and June 30, 1993, the wastes included in subsection 2 may be disposed of in a landfill, only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254, and may be generated in and disposed of in a surface impoundment only if such unit is in compliance with either subdivision b of subsection 8 of section 33-24-05-254 or section 33-24-05-265.

7. Between June 30, 1992, and June 30, 1994, the wastes included in subsections 4 and 5 may be disposed of in a landfill only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254, and may be generated in and disposed of in a surface impoundment only if such unit is in compliance with either subdivision b of subsection 8 of section 33-24-05-254 or section 33-24-05-265.

8. The requirements of subsections 1 through 5 do not apply if:

   a. The wastes meet the applicable standards specified in sections 33-24-05-280 through 33-24-05-289;

   b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition;

   c. The wastes meet the applicable alternate standards established pursuant to a petition granted under section 33-24-05-284;

   d. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to the wastes covered by the extension.

~~(1)~~ 9. To determine whether a hazardous waste identified in this section exceeds the

applicable treatment standards specified in sections 33-24-05-281 and 33-24-05-283, the initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable levels in sections 33-24-05-280 through 33-24-05-289, the waste is prohibited from land disposal, and all requirements of sections 33-24-05-250 through 33-24-05-300 are applicable, except as otherwise specified.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-277. Waste specific prohibitions - ignitable and corrosive characteristic wastes whose treatment standards were vacated.

1. Effective August 9, 1993, the wastes specified in section 33-24-02-11 as D001 (and is not in the high total organic compound ignitable liquids subcategory), and specified in section 33-24-02-12 as D002, that are managed in systems other than those whose discharge is regulated under the Clean Water Act (CWA), or that inject in class I deep wells regulated under the Safe Drinking Water Act (SDWA), or that are zero dischargers that engage in Clean Water Act-equivalent treatment before ultimate land disposal, are prohibited from land disposal. Clean Water Act-equivalent treatment means biological treatment for organics, alkaline chlorination or ferrous sulfate precipitation for cyanide, precipitation or sedimentation or both for metals, reduction of hexavalent chromium, or other treatment technology that can be demonstrated to perform equally or greater than these technologies.

2. Effective February 10, 1994, the wastes specified in section 33-24-02-11 as D001 (and is not in the high total organic compound ignitable liquids subcategory), and specified in section 33-24-02-12 as D002, that are managed in systems defined in 40 CFR 144.6(e) and 146.6(e) as class V injection wells, that do not engage in Clean Water Act-equivalent treatment before injection, are prohibited from land disposal.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-278. ~~[Reserved]~~ Waste specific prohibitions - newly identified organic toxicity characteristic wastes and newly listed coke byproduct and chlorotoluene production wastes.

1. Effective December 19, 1994, the wastes specified in section 33-24-05-272 as environmental protection agency/state hazardous waste numbers K141, K142, K143, K144, K145, K147, K148, K149, K150, and K151 are prohibited from land disposal. In addition, debris contaminated with environmental protection

agency/state hazardous waste numbers F037, F038, K107 through K112, K117, K118, K123 through K126, K131, K132, K136, U328, U353, U359, and soil and debris contaminated with D012 through D043, K141 through K145, and K147 through K151 are prohibited from land disposal. The following wastes that are specified in section 33-24-02-14, table 1 as environmental protection agency/state hazardous waste numbers: D012, D013, D014, D015, D016, D017, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D037, D038, D039, D040, D041, D042, D043 that are not radioactive, or that are managed in systems other than those whose discharge is regulated under the Clean Water Act, or that are zero dischargers that do not engage in Clean Water Act-equivalent treatment before ultimate land disposal, or that are injected in class I deep wells regulated under the Safe Drinking Water Act, are prohibited from land disposal. Clean Water Act-equivalent treatment means biological treatment for organics, alkaline chlorination or ferrous sulfate precipitation for cyanide, precipitation or sedimentation for metals, reduction of hexavalent chromium, or other treatment technology that can be demonstrated to perform equally or better than these technologies.

2. On September 19, 1996, radioactive wastes that are mixed with D018 through D043 that are managed in systems other than those whose discharge is regulated under the Clean Water Act, or that inject in class I deep wells regulated under the Safe Drinking Water Act, or that are zero dischargers that engage in Clean Water Act-equivalent treatment before ultimate land disposal, are prohibited from land disposal. Clean Water Act-equivalent treatment means biological treatment for organics, alkaline chlorination or ferrous sulfate precipitation for cyanide, precipitation or sedimentation for metals, reduction of hexavalent chromium, or other treatment technology that can be demonstrated to perform equally or greater than these technologies. Radioactive wastes mixed with K141 through K145, and K147 through K151 are also prohibited from land disposal. In addition, soil and debris contaminated with these radioactive mixed wastes are prohibited from land disposal.

3. Between December 19, 1994 and September 19, 1996, the wastes included in subsection 2 may be disposed in a landfill or surface impoundment, only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

4. The requirements of subsections 1, 2 and 3 do not apply if:

   a. The wastes meet the applicable treatment standards specified in sections 33-24-05-280 through 33-24-05-289;

   b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition;

   c. The wastes meet the applicable alternate treatment standards established pursuant to a petition granted under section 33-24-05-284; or

   d. Persons have been granted an extension to the effective date of a

prohibition pursuant to section 33-24-05-254, with respect to these wastes covered by the extension.

5. To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards specified in section 33-24-05-280, the initial generator must test a sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable levels found in sections 33-24-05-280 through 33-24-05-289, the waste is prohibited from land disposal, and all requirements of sections 33-24-05-250 through 33-24-05-299 are applicable, except as otherwise specified.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03,23-20.3-04

33-24-05-279. ~~[Reserved]~~ Waste specific prohibitions - spent aluminum potliners; reactive; and carbamate wastes.

1. On July 8, 1996, the wastes specified in section 33-24-05-272 as environmental protection agency/state hazardous waste numbers K156 through K161; and in section 33-24-02-18 as environmental protection agency/state hazardous waste numbers P127, P128, P185, P188 through P192, P194, P196-P199, P201 through P205, U271, U277 through U280, U364 through U367, U372, U373, U375 through U379, U381 through U387, U389 through U396, U400 through U404, U407, and U409 through U411 are prohibited from land disposal. In addition, soil and debris contaminated with these wastes are prohibited from land disposal.

2. On July 8, 1996, the wastes identified in section 33-24-02-13 as D003 that are managed in systems other than those whose discharge is regulated under the Clean Water Act, or that inject in class I deep wells regulated under the Safe Drinking Water Act, or that are zero dischargers that engage in Clean Water Act-equivalent treatment before ultimate land disposal, are prohibited from land disposal. This prohibition does not apply to unexploded ordnance and other explosive devices which have been the subject of an emergency response. (Such D003 wastes are prohibited unless they meet the treatment standard of DEACT before land disposal (see section 33-24-05-280)).

3. On January 8, 1997, the wastes specified in section 33-24-02-17 as environmental protection agency/state hazardous waste number K088 are prohibited from land disposal. In addition, soil and debris contaminated with these wastes are prohibited from land disposal.

4. On April 8, 1998, radioactive wastes mixed with K088, K156 through K161, P127, P128, P185, P188 through P192, P194, P196 through P199, P201 through P205, U271, U277 through U280, U364U367, U372, U373, U375-U379, U381-U387, U389-U396, U400-U404, U407, and U409-U411 are also prohibited from land disposal. In addition, soil and debris contaminated with these radioactive mixed wastes are prohibited from land disposal.

5. Between July 8, 1996, and April 8, 1998, the wastes included in subsections 1, 2, 3, and 4 may be disposed in a landfill or surface impoundment, only if such unit is in compliance with the requirements specified in subdivision b of subsection 8 of section 33-24-05-254.

6. The requirements of subsections 1 through 4 do not apply if:

   a. The wastes meet the applicable treatment standards specified in sections 33-24-05-280 through 33-24-05-289;

   b. Persons have been granted an exemption from a prohibition pursuant to a petition under section 33-24-05-255, with respect to those wastes and units covered by the petition;

   c. The wastes meet the applicable alternate treatment standards established pursuant to a petition granted under section 33-24-05-284; or

   d. Persons have been granted an extension to the effective date of a prohibition pursuant to section 33-24-05-254, with respect to these wastes covered by the extension.

7. To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards specified in section 33-24-05-280, the initial generator must test a sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable sections 33-24-05-280 through 33-24-05-289 levels, the waste is prohibited from land disposal, and all requirements of sections 33-24-05-250 through 33-24-05-299 are applicable, except as otherwise specified.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-280. Applicability of treatment standards.

1. ~~Table CCWE identifies the restricted wastes and the concentrations of their associated constituents which may not be exceeded in the extract of a waste or waste treatment residual extracted using method 1311, the Toxicity Characteristic Leaching Procedure, for the allowable land disposal of such wastes. Compliance with these concentrations is required based upon grab samples. Method 1311 is found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05.~~ A prohibited waste identified in the table "Treatment Standards for Hazardous Wastes" may be land disposed only if it meets the requirements found in the table. For each waste, the table identifies one of three types of treatment standard requirements:

   a. All hazardous constituents in the waste or in the treatment residue must

be at or below the values found in the table for that waste ("Total Waste Standards"); or

b. The hazardous constituents in the extract of the waste or in the extract of the treatment residue must be at or below the values found in the table ("Waste Extract Standards"); or

c. The waste must be treated using the technology specified in the table ("Technology Standard"), which are described in detail in section 33-24-05-282, table 1-Technology Codes and Description of Technology-Based Standards.

2. ~~A restricted waste for which a treatment technology is specified under subsection 1 of section 33-24-05-282, or hazardous debris for which a treatment technology is specified under section 33-24-05-285, may be land disposed after it is treated using that specified technology or an equivalent treatment method approved by the department under the procedures set forth in subsection 2 of section 33-24-05-282. For waste displaying the characteristic of ignitability (D001) and reactivity (D003), that are diluted to meet the deactivation treatment standard in subsection 1 of section 33-24-05-282 tables 1 and 2 (DEACT), the treater must comply with the precautionary measures specified in subsection 2 of section 33-24-05-08 and subsection 5 of section 33-24-06-16 [40 CFR 265.17(b)].~~ For wastewaters, compliance with concentration level standards is based on maximums for any one day, except for D004 through D011 wastes for which the previously promulgated treatment standards based on grab samples remain in effect. For all nonwastewaters, compliance with concentration level standards is based on grab sampling. For wastes covered by the waste extract standards, the test method 1311, the toxicity characteristic leaching procedure found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, as incorporated by reference in section 33-24-01-05, must be used to measure compliance. An exception is made for D004 and D008, for which either of two test methods may be used: method 1311, or method 1310, the extraction procedure toxicity test. For wastes covered by a technology standard, the wastes may be land disposed after being treated using that specified technology or an equivalent treatment technology approved by the department under the procedures set forth in subsection 2 of section 33-24-05-282.

3. ~~Except as otherwise specified in subsection 3 of section 33-24-05-283, a restricted waste identified in section 33-24-05-283 may be land disposed only if the constituent concentrations in the waste or treatment residue of the waste do not exceed the value shown in table CCW of section 33-24-05-283 for any hazardous constituents listed in table CCW for that waste.~~ When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern.

4. ~~If a treatment standard has been established in sections 33-24-05-281 through 33-24-05-283 for a hazardous waste that is itself hazardous debris, the waste is subject to those standards rather than the standards for hazardous debris under section 33-24-05-285.~~ Notwithstanding the prohibitions specified in

subsection 1, treatment and disposal facilities may demonstrate (and certify pursuant to subdivision e of subsection 2 of section 33-24-05-256 compliance with the treatment standards for organic constituents specified by a footnote in the table "Treatment Standards for Hazardous Wastes" in this section, provided the following conditions are satisfied:

a. The treatment standards for the organic constituents were established based on incineration in units operated in accordance with the technical requirements of sections 33-24-05-144 through 33-24-05-159, or based on combustion in fuel substitution units operating in accordance with applicable technical requirements;

b. The treatment or disposal facility has used the methods referenced in subdivision a of subsection 4 to treat the organic constituents; and

c. The treatment or disposal facility may demonstrate compliance with organic constituents if good-faith analytical efforts achieve detection limits for the regulated organic constituents that do not exceed the treatment standards specified in this section by an order of magnitude.

5. For characteristic wastes (D001, D002, D003, and D012 through D043) that are subject to treatment standards in the following table "Treatment Standards for Hazardous Wastes", all underlying hazardous constituents (as defined in subsection 9 of section 33-24-05-251) must meet universal treatment standards, found in section 33-24-05-288, table universal treatment standards, prior to land disposal as defined in subsection 3 of section 33-24-05-251.

a. When these wastes are managed in wastewater treatment systems regulated by the Clean Water Act, compliance with the treatment standards must be achieved no later than "end-of-pipe" as defined in subsection 11 of section 33-24-05-251; or

b. When these wastes are managed in Clean Water Act-equivalent treatment systems and tank-based systems that discharge onto the land, compliance with the treatment standards must be achieved no later than the point the wastewater is released to the land (for example, spray irrigation, discharge to dry riverbeds, placed into evaporation ponds); or

c. When these wastes are managed in class I nonhazardous injection wells, compliance with the treatment standards must be achieved no later than the well head; or

d. For all other, compliance with the treatment standard must be met prior to land disposal as defined in subsection 3 of section 33-24-05-251.

6. The treatment standards for F001 through F005 nonwastewater constituents carbon disulfide, cyclohexanone, or methanol apply to wastes which contain only one, two, or three of these constituents. Compliance is measured for these constituents in the waste extract from test method 1311, the toxicity characteristic leaching procedure found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, as incorporated by reference in

section 33-24-01-05. If the waste contains any of these three constituents along with any of the other twenty-five constituents found in F001 through F005, then compliance with treatment standards for carbon disulfide, cyclohexanone, or methanol are not required.

7. Between August 26, 1996, and August 26, 1997, the treatment standards for the wastes specified in section 33-24-02-17 as environmental protection agency hazardous waste numbers K156 through K161; and in section 33-24-02-18 as environmental protection agency hazardous waste numbers P127, P128, P185, P188 through P192, P194, P196 through P199, P201-P205, U271, U277 through U280, U364 through U367, U372, U373, U375 through U379, U381 through U387, U389 through U396, U400 through U404, U407, and U409 through U411; and soil contaminated with these wastes; may be satisfied by either meeting the constituent concentrations presented in the table "Treatment Standards for Hazardous Waste", or by treating the waste by the following technologies: combustion, as defined by the technology code CMBST in table 1 in section 33-24-05-282, for nonwastewaters; and, biodegradation as defined by the technology code BIODG, carbon adsorption as defined by the technology code CARBN, chemical oxidation as defined by the technology code CHOXD, or combustion as defined by the technology code CMBST in table 1 of section 33-24-05-282, for wastewaters.

NOTE: the following table and notes at end of table replace previous (table CCWE - Constituent Concenrations in Waste Extract) which is noted with overstrikes (follows new table).

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D001[9]	Ignitable characteristic wastes, except for the subdivision a of subsection 1 of section 33-24-02-11 high total organic carbon subcategory.	NA	NA	DEACT and meet section 33-24-05-288 standards;[8] or RORGS; or CMBST	DEACT and meet section 33-24-05-288 standards;[8] or RORGS; or CMBST
	High total organic carbon ignitable characteristic liquids Subcategory based on the subdivision a of subsection 1 of section 33-24-02-11 - greater than or equal to 10% total organic carbon. (Note: This subcategory consists of nonwastewaters only).	NA	NA	NA	RORGS; or CMBST
D002[9]	Corrosive characteristic wastes.	NA	NA	DEACT and meet section 33-24-05-288 standards[8]	DEACT and meet section 33-24-05-288 standards[8]
D002, D004, D005, D006, D007, D008, D009, D010, D011	Radioactive high level wastes generated during the reprocessing of fuel rods. (Note: This subcategory consists of nonwastewaters only.)	Corrosivity (pH)	NA	NA	HLVIT
		Arsenic	7440-38-2	NA	HLVIT
		Barium	7440-39-3	NA	HLVIT
		Cadmium	7440-43-9	NA	HLVIT
		Chromium (Total)	7440-47-3	NA	HLVIT
		Lead	7439-92-1	NA	HLVIT
		Mercury	7439-97-6	NA	HLVIT
		Selenium	7782-49-2	NA	HLVIT
		Silver	7440-22-4	NA	HLVIT

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D003[9]	Reactive sulfides subcategory based on subdivision e of subsection 1 of section 33-24-02-13.	NA	NA	DEACT	DEACT
	Explosives subcategory based on subdivisions f, g and h of subsection 1 of section 33-24-02-13.	NA	NA	DEACT and meet section 33-24-05-288 standards[8]	DEACT and meet section 33-24-05-288 standards[8]
	Unexploded ordnance and other explosive devices which have been the subject of an emergency response.	NA	NA	DEACT	DEACT
	Other reactives subcategory based on subdivision a of subsection 1 of section 33-24-02-13.	NA	NA	DEACT and meet §section 33-24-05-288 standards[8]	DEACT and meet §section 33-24-05-288 standards[8]
	Water reactive subcategory based on subdivisions b, c and d of subsection 1 of section 33-24-02-13. (Note: This subcategory consists of nonwastewaters only).	NA	NA	NA	DEACT and meet section 33-24-05-288 standards[8]
	Reactive cyanides subcategory based on subdivision e of subsection 1 of section 33-24-02-13.	Cyanides (Total)[7]	57-12-5	Reserved	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
D004	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for arsenic based on the extraction procedure (EP) in SW846 Methods 1310.	Arsenic	7440-38-2	5.0	5.0 mg/l EP
		Arsenic; alternate[6] standard for nonwastewaters only	7440-38-2	NA	5.0 mg/l TCLP
D005	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for barium based on the extraction procedure (EP) in SW846 Method 1310.	Barium	7440-39-3	100	100 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D006	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for cadmium based on the extraction procedure (EP) in SW846 Method 1310.	Cadmium	7440-43-9	1.0	1.0 mg/l TCLP
	Cadmium containing batteries subcategory (Note: This subcategory consists of nonwastewaters only).	Cadmium	7440-43-9	NA	RTHRM
D007	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for chromium based on the extraction procedure (EP) in SW846 Method 1310.	Chromium (Total)	7440-47-3	5.0	5.0 mg/l TCLP
D008	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for lead based on the extraction procedure (EP) in SW846 Method 1310.	Lead	7439-92-1	5.0	5.0 mg/l EP
		Lead; alternate[6] standard for nonwastewaters only	7439-92-1	NA	5.0 mg/l TCLP
	Lead acid batteries subcategory (Note: This standard only applies to lead acid batteries that are identified as Resource Conservation and Recovery Act hazardous wastes and that are not excluded elsewhere from regulation under the land disposal restrictions of sections 33-24-05-250 through 33-24-05-299 or exempted under other regulations. This subcategory consists of nonwastewaters only.).	Lead	7439-92-1	NA	RLEAD
	Radioactive lead solids subcategory (Note: these lead solids include, but are not limited to, all forms of lead shielding and other elemental forms of lead. These lead solids do not include treatment residuals such as hydroxide sludges, other wastewater treatment residuals, or incinerator ashes that can undergo conventional pozzolanic stabilization, nor do they include organo-lead materials that can be incinerated and stabilized as ash. This subcategory consists of nonwastewaters only).	Lead	7439-92-1	NA	MACRO

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D009	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the extraction procedure (EP) in SW846 Method 1310; and contain greater than or equal to 260 mg/kg total mercury that also contain organics and are not incinerator residues. (High mercury-organic subcategory)	Mercury	7439-97-6	NA	IMERC; OR RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the extraction procedure (EP) in SW846 Method 1310; and contain greater than or equal to 260 mg/kg total mercury that are inorganic, including incinerator residues and residues from RMERC. (High mercury-inorganic subcategory)	Mercury	7439-97-6	NA	RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the extraction procedure (EP) in SW846 Method 1310; and contain less than 260 mg/kg total mercury. (Low mercury subcategory.).	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	All D009 wastewaters.	Mercury	7439-97-6	0.20	NA
	Elemental mercury contaminated with radioactive materials. (Note: This subcategory consists of nonwastewaters only.).	Mercury	7439-97-6	NA	AMLGM
	Hydraulic oil contaminated with mercury radioactive materials subcategory. (Note: This subcategory consists of nonwastewaters only.).	Mercury	7439-97-6	NA	IMERC
D010	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for selenium based on the extraction procedure (EP) in SW846 Method 1310.	Selenium	7782-49-2	1.0	5.7 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D011	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for silver based on the extraction procedure (EP) in SW846 Method 1310.	Silver	7440-22-4	5.0	5.0 mg/l TCLP
D012[9]	Wastes that are toxicity characteristic for endrin based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Endrin	72-20-8	BIODG; or CMBST	0.13 and meet section 33-24-05-288 standards[8]
		Endrin aldehyde	7421-93-4	BIODG; or CMBST	0.13 and meet section 33-24-05-288 standards[8]
D013[9]	Wastes that are toxicity characteristic for lindane based on the toxicity characteristic leaching procedure in SW846 Method 1311.	alpha-BHC	319-84-6	CARBN; or CMBST	0.066 and meet section 33-24-05-288 standards[8]
		beta-BHC	319-85-7	CARBN; or CMBST	0.066 and meet section 33-24-05-288 standards[8]
		delta-BHC	319-86-8	CARBN; or CMBST	0.066 and meet section 33-24-05-288 standards[8]
		gamma-BHC (Lindane)	58-89-9	CARBN; or CMBST	0.066 and meet section 33-24-05-288 standards[8]

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D014[9]	Wastes that are toxicity characteristic for methoxychlor based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Methoxychlor	72-43-5	WETOX or CMBST	0.18 and meet section 33-24-05-288 standards[8]
D015[9]	Wastes that are toxicity characteristic for toxaphene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Toxaphene	8001-35-2	BIODG or CMBST	2.6 and meet section 33-24-05-288 standards[8]
D016[9]	Wastes that are toxicity characteristic for 2,4-D (2,4-Dichlorophenoxyacetic acid) based on the toxicity characteristic leaching procedure in SW846 Method 1311.	2,4-D(2,4-Dichlorophenoxyacetic acid)	94-75-7	CHOXD; BIODG; or CMBST	10 and meet section 33-24-05-288 standards[8]
D017[9]	Wastes that are toxicity characteristic for 2,4,5-TP (Silvex) based on the toxicity characteristic leaching procedure in SW846 Method 1311.	2,4,5-TP(Silvex)	93-72-1	CHOXD or CMBST	7.9 and meet section 33-24-05-288 standards[8]
D018[9]	Wastes that are toxicity characteristic for benzene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Benzene	71-43-2	0.14 and meet section 33-24-05-288 standards[8]	10 and meet section 33-24-05-288 standards[8]
D019[9]	Wastes that are toxicity characteristic for carbon tetrachloride based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Carbon tetrachloride	56-23-5	0.057 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D020[9]	Wastes that are toxicity characteristic for chlordane based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Chlordane (alpha and gamma isomers)	57-74-9	0.0033 and meet section 33-24-05-288 standards[8]	0.26 and meet section 33-24-05-288 standards[8]
D021[9]	Wastes that are toxicity characteristic for chlorobenzene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Chlorobenzene	108-90-7	0.057 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
D022[9]	Wastes that are toxicity characteristic for chloroform based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Chloroform	67-66-3	0.046 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
D023[9]	Wastes that are toxicity characteristic for o-cresol based on the toxicity characteristic leaching procedure in SW846 Method 1311.	o-Cresol	95-48-7	0.11 and meet section 33-24-05-288 standards[8]	5.6 and meet section 33-24-05-288 standards[8]
D024[9]	Wastes that are toxicity characteristic for m-cresol based on the toxicity characteristic leaching procedure in SW846 Method 1311.	M-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77 and meet section 33-24-05-288 standards[8]	5.6 and meet section 33-24-05-288 standards[8]
D025[9]	Wastes that are toxicity characteristic for p-cresol based on the toxicity characteristic leaching procedure in SW846 Method 1311.	p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77 and meet section 33-24-05-288 standards[8]	5.6 and meet section 33-24-05-288 standards[8]

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D026[9]	Wastes that are toxicity characteristic for cresols (total) based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations)	1319-77-3	0.88 and meet section 33-24-05-288 standards[8]	11.2 and meet section 33-24-05-288 standards[8]
D027[9]	Wastes that are toxicity characteristic for p-dichlorobenzene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	p-Dichlorobenzene (1,4-Dichlorobenzene)	106-46-7	0.090 and meet section 33-24-05-288 standards[8].	6.0 and meet section 33-24-05-288 standards.[8]
D028[9]	Wastes that are toxicity characteristic for 1,2-dichloroethane based on the toxicity characteristic leaching procedure in SW846 Method 1311.	1,2-Dichloroethane	107-06-2	0.21 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
D029[9]	Wastes that are toxicity characteristic for 1,1-dichloroethylene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	1,1-Dichlorethylene	75-35-4	0.025 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
D030[9]	Wastes that are toxicity characteristic for 2,4-dinitrotoluene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	2,4-Dinitrotoluene	121-14-2	0.32 and meet section 33-24-05-288 standards[8]	140 and meet section 33-24-05-288 standards[8]
D031	Wastes that are toxicity characteristic for heptachlor based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Heptachlor	76-44-8	0.0012 and meet section 33-24-05-288 standards[8]	0.066 and meet section 33-24-05-288 standards[8]

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Heptachlor epoxide	1024-57-3	0.016 and meet section 33-24-05-288 standards[8]	0.066 and meet section 33-24-05-288 standards[8]
D032[9]	Wastes that are toxicity characteristic for hexachlorobenzene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Hexachlorobenzene	118-74-1	0.055 and meet section 33-24-05-288 standards[8]	10 and meet section 33-24-05-288 standards[8]
D033[9]	Wastes that are toxicity characteristic for hexachlorobutadiene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Hexachlorobutadiene	87-68-3	0.055 and meet section 33-24-05-288 standards[8]	5.6 and meet section 33-24-05-288 standards[8]
D034[9]	Wastes that are toxicity characteristic for hexachloroethane based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Hexachloroethane	67-72-1	0.055 and meet section 33-24-05-288 standards[8]	30 and meet section 33-24-05-288 standards[8]
D035[9]	Wastes that are toxicity characteristic for methyl ethyl ketone based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Methyl ethyl ketone	78-93-3	0.28 and meet section 33-24-05-288 standards[8]	36 and meet section 33-24-05-288 standards[8]
D036[9]	Wastes that are toxicity characteristic for nitrobenzene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Nitrobenzene	98-95-3	0.068 and meet section 33-24-05-288 standards[8]	14 and meet section 33-24-05-288 standards[8]

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D037[9]	Wastes that are toxicity characteristic for pentachlorophenol based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Pentachlorophenol	87-86-5	0.089 and meet section 33-24-05-288 standards[8]	7.4 and meet section 33-24-05-288 standards[8]
D038[9]	Wastes that are toxicity characteristic for pyridine based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Pyridine	110-86-1	0.014 and meet section 33-24-05-288 standards[8]	16 and meet section 33-24-05-288 standards[8]
D039[9]	Wastes that are toxicity characteristic for tetrachloroethylene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Tetrachloroethylene	127-18-4	0.056 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
D040[9]	Wastes that are toxicity characteristic for trichloroethylene based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Trichloroethylene	79-01-6	0.054 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
D041[9]	Wastes that are toxicity characteristic for 2,4,5-trichlorophenol based on the toxicity characteristic leaching procedure in SW846 Method 1311.	2,4,5-Trichlorophenol	95-95-4	0.18 and meet section 33-24-05-288 standards[8]	7.4 and meet section 33-24-05-288 standards[8]
D042	Wastes that are toxicity characteristic for 2,4,6-trichlorophenol based on the toxicity characteristic leaching procedure in SW846 Method 1311.	2,4,6-Trichlorophenol	88-06-2	0.035 and meet section 33-24-05-288 standards[8]	7.4 and meet section 33-24-05-288 standards[8]

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D043	Wastes that are toxicity characteristic for vinyl chloride based on the toxicity characteristic leaching procedure in SW846 Method 1311.	Vinyl chloride	75-01-4	0.27 and meet section 33-24-05-288 standards[8]	6.0 and meet section 33-24-05-288 standards[8]
F001, F002, F003, F004, & F005	F001, F002, F003, F004 and/or F005 solvent wastes that contain any combination of one or more of the following spent solvents: acetone, benzene, n-butyl alcohol, carbon disulfide, carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, o-cresol, m-cresol, p-cresol, cyclohexanone, o-dichlorobenzene, 2-ethoxyethanol, ethyl acetate, ethyl benzene, ethyl ether, isobutyl alcohol, methanol, methylene chloride, methyl ethyl ketone, methyl isobutyl ketone, nitrobenzene, 2-nitropropane, pyridine, tetrachloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2-trichloro-1,2,2-trifluorethane, trichloroethylene, trichloromonofluoromethane, and/or xylenes [except as specifically noted in other subcategories]. See further details of these listings in section 33-24-02-16.	Acetone	67-64-1	0.28	160
		Benzene	71-42-2	0.14	10
		n-Butyl alcohol	71-36-3	5.6	2.6
		Carbon disulfide	75-15-0	3.8	NA
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chlorobenzene	108-90-7	0.057	6.0
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations	1319-77-3	0.88	11.2
		Cyclohexanone	108-94-1	0.36	NA
		o-Dichlorobenzene	95-50-1	0.088	6.0
		Ethyl acetate	141-78-6	0.34	33

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Ethyl benzene	100-41-4	0.057	10
		Ethyl ether	60-29-7	0.12	160
		Isobutyl alcohol	78-83-1	5.6	170
		Methanol	67-56-1	5.6	NA
		Methylene chloride	75-9-2	0.089	30
		Methyl ethyl ketone	78-93-3	0.28	36
		Methyl isobutyl ketone	108-10-1	0.14	33
		Nitrobenzene	98-95-3	0.068	14
		Pyridine	110-86-1	0.014	16
		Tetrachloroethylene	127-18-4	0.056	6.0
		Toluene	108-88-3	0.080	10
		1,1,1-Trichlorethane	71-55-6	0.054	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.057	30
		Trichloroethylene	79-01-6	0.054	6.0
		Trichloromonofluoromethane	75-69-4	0.020	30
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations	1330-20-7	0.32	30

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
	F003 and/or F005 solvent wastes that contain any combination of one or more of the following three solvents as the only listed F001-5 solvents: carbon disulfide, cyclohexanone, and/or methanol. (formerly subsection 3 of section 33-24-05-281).	Carbon disulfide	75-15-0	3.8	4.8 mg/l TCLP
		Cyclohexanone	108-94-1	0.36	0.75 mg/l TCLP
		Methanol	67-56-1	5.6	0.75 mg/l TCLP
	F005 solvent waste containing 2-nitropropane as the only listed F001-F005 solvent..	2-Nitropropane	79-46-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
	F005 solvent waste containing 2-ethoxyethanol as the only listed F001-F005 solvent..	2-Ethoxyethanol	110-80-5	BIODG; or CMBST	CMBST
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	Cadmium	7440-43-9	.069	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amendable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F007	Spent cyanide plating bath solutions from electroplating operations.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	NA
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
F020, F021, F022, F023, F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of: (1) tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives, excluding wastes from the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol (F020); (2) pentachlorophenol, or of intermediates used to produce its derivatives (for example, F021); (3) tetra-, penta-, or hexachlorobenzenes under alkaline conditions (for example, F022); and from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of: (1) tri- or tetrachlorophenols, excluding wastes from equipment used only for the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol (F023); (2) tetra-, penta-, or hexachlorobenzenes under alkaline conditions (for example, F026).	HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		Pentachlorophenol	87-86-5	0.089	7.4
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in section 33-24-02-16 or 33-24-02-17.).	All F024 wastes	NA	CMBST	CMBST
		2-Chloro-1,3-butadiene	126-99-8	0.057	0.28
		3-Chloropropylene	107-05-1	0.036	30
		1,1-Dichloroethane	75-34-3	0.059	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		1,2-Dichloropropane	78-87-5	0.85	18
		cis-1,3-Dichloropropylene	10061-01-5	0.036	18
		trans-1,3-Dichloropropylene	10061-02-6	0.036	18
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Hexachloroethane	67-72-1	0.055	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
F025	Condensed light ends from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. F025 - Light ends subcategory	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		1,1-Dichloroethylene	75-35-4	0.025	6.0
		Methylene chloride	75-9-2	0.089	30
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Vinyl chloride	75-01-4	0.27	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
	Spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. F025 - Spent filters/aids and desiccants subcategory	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Methylene chloride	75-9-2	0.089	30
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Vinyl chloride	75-01-4	0.27	6.0
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component).	HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		Pentachlorophenol	87-86-5	0.089	7.4
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with hazardous wastes numbers F020, F021, F023, F026, and F027.	HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000063	0.001
		Pentachlorophenol	87-86-5	0.089	7.4
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0.30	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
F037	Petroleum refinery primary oil/water/solids separation sludge-any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in subdivision b of subsection 2 of section 33-24-02-16 (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.	Acenaphthene	83-32-9	0.059	NA
		Anthracene	120-12-7	0.059	3.4
		Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	218-01-9	0.059	3.4
		Di-n-butyl phthalate	84-74-2	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air floatation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in subdivision b of subsection 2 of section 33-24-02-16 (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological units) and F037, K048, and K051 are not included in this listing.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	218-01-9	0.059	3.4
		Di-n-butyl phthalate	84-74-2	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under sections 33-24-05-280 through 33-24-05-289. (Leachate resulting from the disposal of one or more of the following hazardous wastes and no other hazardous wastes retains its hazardous waste number(s): F020, F021, F022, F026, F027, and/or F028.).	Acenaphthylene	208-96-8	0.059	3.4
		Acenaphthene	83-32-9	0.059	3.4
		Acetone	67-64-1	0.28	160
		Acetonitrile	75-05-8	5.6	NA
		Acetophenone	96-86-2	0.010	9.7
		2-Acetylaminofluorene	53-96-3	0.059	140
		Acrolein	107-02-8	0.29	NA
		Acrylonitrile	107-13-1	0.24	84
		Aldrin	309-00-2	0.021	0.066
		4-Aminobiphenyl	92-67-1	0.13	NA
		Aniline	62-53-3	0.81	14
		Anthracene	120-12-7	0.059	3.4
		Aramite	140-57-8	0.36	NA
		alpha-BHC	319-84-6	0.00014	0.066
		beta-BHC	319-85-7	0.00014	0.066
		delta-BHC	319-86-8	0.023	0.066
		gamma-BHC	58-89-9	0.0017	0.066
		Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Bromodichloromethane	75-27-4	0.35	15
		Methyl bromide (Bromomethane)	74-83-9	0.11	15
		4-Bromophenyl phenyl ether	101-55-3	0.055	15
		n-Butyl alcohol	71-36-3	5.6	2.6
		Butyl benzyl phthalate	85-68-7	0.017	28
		2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	0.066	2.5
		Carbon disulfide	75-15-0	3.8	NA
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
		p-Chloroaniline	106-47-8	0.46	16
		Chlorobenzene	108-90-7	0.057	6.0
		Chlorobenzilate	510-15-6	0.10	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		2-Chloro-1,3-butadiene	126-99-8	0.057	NA
		Chlorodibromomethane	124-48-1	0.057	15
		Chloroethane	75-00-3	0.27	6.0
		bis(2-Chloroethoxy)methane	111-91-1	0.036	7.2
		bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
		Chloroform	67-66-3	0.046	6.0
		bis(2-Chloroisopropyl)ether	39638-32-9	0.055	7.2
		p-Chloro-m-cresol	59-50-7	0.018	14
		Chloromethane (Methyl chlorida)	74-87-3	0.19	30
		2-Chloronaphthalene	91-58-7	0.055	5.6
		2-Chlorophenol	95-57-8	0.044	5.7
		3-Chloropropylene	107-05-1	0.036	30
		Chrysene	218-01-9	0.059	3.4
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Cyclohexanone	108-94-1	0.36	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		1,2-Dibromo-3-chloropropane	96-12-8	0.11	15
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
		Dibromomethane	74-95-3	0.11	15
		2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	0.72	10
		o,p'-DDD	53-19-0	0.023	0.087
		p,p'-DDD	72-54-8	0.023	0.087
		o,p'-DDE	3424-82-6	0.031	0.087
		p,p'-DDE	72-55-9	0.031	0.087
		o,p'-DDT	789-02-6	0.0039	0.087
		p,p'-DDT	50-29-3	0.0039	0.087
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Dibenz(a,e)pyrene	192-65-4	0.061	NA
		m-Dichlorobenzene	541-73-1	0.036	6.0
		o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Dichlorodifluoromethane	75-71-8	0.23	7.2
		1,1-Dichloroethane	75-34-3	0.059	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		1,1-Dichloroethylene	75-35-4	0.025	6.0
		trans-1,2-Dichloroethylene	156-60-5	0.054	30
		2,4-Dichlorophenol	120-83-2	0.044	14
		2,6-Dichlorophenol	87-65-0	0.044	14
		1,2-Dichloropropane	78-87-5	0.85	18
		cis-1,3-Dichloropropylene	10061-01-5	0.036	18
		trans-1,3-Dichloropropylene	10061-02-6	0.036	18
		Dieldrin	60-57-1	0.017	0.13
		Diethyl phthalate	84-66-2	0.20	28
		2-4-Dimethyl phenol	105-67-9	0.036	14
		Dimethyl phthalate	131-11-3	0.047	28
		Di-n-butyl phthalate	84-74-2	0.057	28
		1,4-Dinitrobenzene	100-25-4	0.32	2.3
		4,6-Dinitro-o-cresol	534-52-1	0.28	160
		2,4-Dinitrophenol	51-28-5	0.12	160
		2,4-Dinitrotoluene	121-14-2	0.32	140
		2,6-Dinitrotoluene	606-20-2	0.55	28
		Di-n-octyl phthalate	117-84-0	0.017	28
		Di-n-propylnitrosamine	621-64-7	0.40	14
		1,4-Dioxane	123-91-1	12.0	170

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122-39-4	0.92	NA
		Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	NA
		1,2-Diphenylhydrazine	122-66-7	0.087	NA
		Disulfoton	298-04-4	0.017	6.2
		Endosulfan I	939-98-8	0.023	0.066
		Endosulfan II	33213-6-5	0.029	0.13
		Endosulfan sulfate	1-31-07-8	0.029	0.13
		Endrin	72-20-8	0.0028	0.13
		Endrin aldehyde	7421-93-4	0.025	0.13
		Ethyl acetate	141-78-6	0.34	33
		Ethyl cyanide (Propanenitrile)	107-12-0	0.24	360
		Ethyl benzene	100-41-4	0.057	10
		Ethyl ether	60-29-7	0.12	160
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Ethyl methacrylate	97-63-2	0.14	160
		Ethylene oxide	75-21-8	0.12	NA
		Famphur	52-85-7	0.017	15

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Fluoranthene	206-44-0	0.068	3.4
		Fluorene	86-73-7	0.059	3.4
		Heptachlor	76-44-8	0.0012	0.066
		Heptachlor epoxide	1024-57-3	0.016	0.066
		Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachlorocyclopentadiene	77-47-4	0.057	2.4
		HxCDDs (All Hexa-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		Hexachloroethane	67-72-1	0.055	30
		Hexachloropropylene	1888-71-7	0.035	30
		Indeno (1,2,3-c,d) pyrene	193-39-5	0.0055	3.4
		Iodomethane	74-88-4	0.19	65
		Isobutyl alcohol	78-83-1	5.6	170
		Isodrin	465-73-6	0.021	0.066
		Isosafrole	120-58-1	0.081	2.6
		Kepone	143-50-8	0.0011	0.13
		Methacrylonitrile	126-98-7	0.24	84

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Methanol	67-56-1	5.6	NA
		Methapyrilene	91-80-5	0.081	1.5
		Methoxychlor	72-43-5	0.25	0.18
		3-Methylcholanthrene	56-49-5	0.0055	15
		4,4-Methylene bis(2-chloroaniline)	101-14-4	0.50	30
		Methylene chloride	75-09-2	0.089	30
		Methyl ethyl ketone	78-93-3	0.28	36
		Methyl isobutyl ketone	108-10-1	0.14	33
		Methyl methacrylate	80-62-6	0.14	160
		Methyl methansulfonate	66-27-3	0.018	NA
		Methyl parathion	298-00-0	0.014	4.6
		Naphthalene	91-20-3	0.059	5.6
		2-Naphthylamine	91-59-8	0.52	NA
		p-Nitroaniline	100-01-6	0.028	28
		Nitrobenzene	98-95-3	0.068	14
		5-Nitro-o-toluidine	99-55-8	0.32	28
		p-Nitrophenol	100-02-7	0.12	29
		N-Nitrosodiethylamine	55-18-5	0.40	28
		N-Nitrosodimethylamine	62-75-9	0.40	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		N-Nitroso-di-n-butylamine	924-16-3	0.40	17
		N-Nitrosomethylethylamine	10595-95-6	0.40	2.3
		N-Nitrosomorpholine	59-89-2	0.40	2.3
		N-Nitrosopiperidine	100-75-4	0.013	35
		N-Nitrosopyrrolidine	930-55-2	0.013	35
		Parathion	56-38-2	0.014	4.6
		Total PCBs (sum of all PCB isomers, or all Aroclors)	1336-36-3	0.10	10
		Pentachlorobenzene	608-93-5	0.055	10
		PeCDDs (All Penta-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		Pentachloronitrobenzene	82-68-8	0.055	4.8
		Pentachlorophenol	87-86-5	0.089	7.4
		Phenacetin	62-44-2	0.081	16
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Phorate	298-02-2	0.021	4.6
		Phthalic anhydride	85-44-9	0.055	NA
		Pronamide	23950-58-5	0.093	1.5

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Pyrene	129-00-0	0.067	8.2
		Pyridine	110-86-1	0.014	16
		Safrole	94-59-7	0.081	22
		Silvex (2,4,5-TP)	93-72-1	0.72	7.9
		2,4,5-T	93-76-5	0.72	7.9
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		TCDDs (All Tetra-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
		1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
		Toluene	108-88-3	0.080	10
		Toxaphene	8001-35-2	0.0095	2.6
		Bromoform (Tribromomethane)	75-25-2	0.63	15
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Trichloroethylene	79-01-6	0.054	6.0
		Trichloromonofluoromethane	75-69-4	0.020	30
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		1,2,3-Trichloropropane	96-18-4	0.85	30
		1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.057	30
		tris(2,3-Dibromopropyl) phosphate	126-72-7	0.11	NA
		Vinyl chloride	75-01-4	0.27	6.0
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Antimony	7440-36-0	1.9	2.1 mg/l TCLP
		Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
		Barium	7440-39-3	1.2	7.6 mg/l TCLP
		Beryllium	7440-41-7	0.82	NA
		Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)	57-12-5	0.86	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Fluoride	16964-48-8	35	NA
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Mercury	7439-97-6	0.15	0.025 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Selenium	7782-49-2	0.82	0.16 mg/l TCLP
		Silver	7440-22-4	0.43	0.30 mg/l TCLP
		Sulfide	8496-25-8	14	NA
		Thallium	7440-28-0	1.4	NA
		Vanadium	7440-62-2	4.3	NA
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.	Naphthalene	91-20-3	0.059	5.6
		Pentachlorophenol	87-86-5	0.089	7.4
		Phenanthrene	85-01-8	0.059	5.6
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K005	Wastewater treatment sludge from the production of chrome green pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous).	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
	Wastewater treatment sludge from the production of chrome oxide green pigments (hydrated).	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
K007	Wastewater treatment sludge from the production of iron blue pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
K008	Oven residue from the production of chrome oxide green pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	Chloroform	67-66-3	0.046	6.0
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	Chloroform	67-66-3	0.046	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	Acetonitrile	75-05-8	5.6	38
		Acrylonitrile	107-13-1	0.24	84
		Acrylamide	79-06-1	19	23
		Benzene	71-43-2	0.14	10
		Cyanide (Total)	57-12-5	1.2	590
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	Acetonitrile	75-05-8	5.6	38
		Acrylonitrile	107-13-1	0.24	84
		Acrylamide	79-06-1	19	23
		Benzene	71-43-2	0.14	10
		Cyanide (Total)	57-12-5	1.2	590
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	Acetonitrile	75-05-8	5.6	38
		Acrylonitrile	107-13-1	0.24	84
		Acrylamide	79-06-1	19	23
		Benzene	71-43-2	0.14	10
		Cyanide (Total)	57-12-5	1.2	590
K015	Still bottoms from the distillation of benzyl chloride.	Anthracene	120-12-7	0.059	3.4
		Benzal chloride	98-87-3	0.055	6.0
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene	205-99-2	0.11	6.8

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Benzo(k)fluroanthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Phenanthrene	85-01-8	0.059	5.6
		Toluene	108-88-3	0.080	10
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachlorocyclopentadiene	77-47-4	0.057	2.4
		Hexachloroethane	67-72-1	0.055	30
		Tetrachloroethylene	127-18-4	0.056	6.0
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
		1,2-Dichloropropane	78-87-5	0.85	18
		1,2,3-Trichloropropane	96-18-4	0.85	30
K018	Heavy ends from the fractionation column in ethyl chloride production.	Chloroethane	75-00-3	0.27	6.0
		Chloromethane	74-87-3	0.19	NA
		1,1-Dichloroethane	75-34-3	0.059	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		Hexachlorobenzene	118-74-1	0.055	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Pentachloroethane	76-01-7	NA	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
		Chlorobenzene	108-90-7	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		p-Dichlorobenzene	106-46-7	0.090	NA
		1,2-Dichloroethane	107-06-2	0.21	6.0
		Fluorene	86-73-7	0.059	NA
		Hexachloroethane	67-72-1	0.055	30
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	NA
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	1,2-Dichloroethane	107-06-2	0.21	6.0
		1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Antimony	7440-36-0	1.9	2.1 mg/l TCLP
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	Toluene	108-88-3	0.080	10
		Acetophenone	96-86-2	0.010	9.7
		Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122-39-4	0.92	13
		Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	13
		Phenol	108-95-2	0.039	6.2
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	100-21-0	0.055	28
		Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	85-44-9	0.055	28
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	100-21-0	0.055	28

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	85-44-9	0.055	28
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	NA	NA	LLEXT fb SSTRP fb CARBN; or CMBST	CMBST
K026	Stripping still tails from the production of methyl ethyl pyridines.	NA	NA	CMBST	CMBST
K027	Centrifuge and distillation residues from toluene diisocyanate production.	NA	NA	CARBN; or CMBST	CMBST
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	1,1-Dichloroethane	75-34-3	0.059	6.0
		trans-1,2-Dichloroethylene	156-60-5	0.054	30
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Pentachloroethane	76-01-7	NA	6.0
		1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Cadmium	7440-43-9	0.69	NA
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane.	Chloroform	67-66-3	0.046	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		1,1-Dichloroethylene	75-35-4	0.025	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		Vinyl chloride	75-01-4	0.27	6.0
K030	Column bodies or heavy ends from the combined production of trichloroethylene and perchloroethylene.	o-Dichlorobenzene	95-50-1	0.088	NA
		p-Dichlorobenzene	106-46-7	0.090	NA
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Hexachloropropylene	1888-71-7	NA	30
		Pentachlorobenzene	608-93-5	NA	10
		Pentachloroethane	76-01-7	NA	6.0
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K031	Byproduct salts generated in the production of MSMA and cacodylic acid.	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K032	Wastewater treatment sludge from the production of chlordane.	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
		Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
		Heptachlor	76-44-8	0.0012	0.066
		Heptachlor epoxide	1024-57-3	0.016	0.066
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	Hexachlorocylopentadiene	77-47-4	0.057	2.4
K035	Wastewater treatment sludges generated in the production of creosote.	Acenaphthene	83-32-9	NA	3.4
		Anthracene	120-12-7	NA	3.4
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Chrysene	218-01-9	0.059	3.4
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Dibenz(a,h)anthracene	53-70-3	NA	8.2
		Fluoranthene	206-44-0	0.068	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Fluorene	86-73-7	NA	3.4
		Indeno(1,2,3-cd)pyrene	193-39-5	NA	3.4
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.	Disulfoton	298-04-4	0.017	6.2
K037	Wastewater treatment sludges from the production of disulfoton.	Disulfoton	298-04-4	0.017	6.2
		Toluene	108-88-3	0.080	10
K038	Wastewater from the washing and stripping of phorate production.	Phorate	298-02-2	0.021	4.6
K039	Filter cake from the filtration of diethylphosphorodithioc acid in the production of phorate.	NA	NA	CARBN; or CMBST	CMBST
K040	Wastewater treatment sludge from the production of phorate.	Phorate	298-02-2	0.021	4.6
K041	Wastewater treatment sludge from the production of toxaphene.	Toxaphene	8001-35-2	0.0095	2.6
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Pentachlorobenzene	608-93-5	0.055	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	2,4-Dichlorophenol	120-83-2	0.044	14
		2,6-Dichlorophenol	187-65-0	0.044	14
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
		Pentachlorophenol	87-86-5	0.089	7.4
		Tetrachloroethylene	127-18-4	0.056	6.0
		HxCDDs (All Hexa-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexa-chlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Penta-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Penta-chlorodibenzofurans)	NA	0.000035	0.001
		TCDDs (All Tetra-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetra-chlorodibenzofurans)	NA	0.000063	0.001
K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	NA	NA	DEACT	DEACT

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K045	Spent carbon from the treatment of wastewater containing explosives.	NA	NA	DEACT	DEACT
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.	Lead	7439-92-1	0.69	0.37 mg/l TCLP
K047	Pink/red water from TNT operations.	NA	NA	DEACT	DEACT
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	218-01-9	0.059	3.4
		Di-n-butyl phthalate	84-74-2	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-33	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K049	Slop oil emulsion solids from the petroleum refining industry.	Anthracene	120-12-7	0.059	3.4
		Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Carbon disulfide	75-15-0	3.8	NA
		Chrysene	2218-01-9	0.059	3.4
		2,4-Dimethylphenol	105-67-9	0.036	NA
		Ethylbenzene	100-41-4	0.057	10
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-. and p-xylene concentrations)	1330-20-7	0.32	30
		Cyanides (Total)[7]	57-12-5	1.2	590

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	Benzo(a)pyrene	50-32-8	0.061	3.4
		Phenol	108-95-2	0.039	6.2
		Cyanides (Total)[7]	57-12-5	1.2	590
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K051	API separator sludge from the petroleum refining industry.	Acenaphthene	83-32-9	0.059	NA
		Anthracene	120-12-7	0.059	3.4
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	2218-01-9	0.059	3.4
		Di-n-butyl phthalate	105-67-9	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.08	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Cyanides (Total)[7]	57-12-5	1.2	590
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K052	Tank bottoms (leaded) from the petroleum refining industry.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		2,4-Dimethylphenol	105-67-9	0.036	NA
		Ethylbenzene	100-41-4	0.057	10
		Naphthalene	91-20-3	0.059	5.6

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Toluene	108-88-3	0.08	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K060	Ammonia still lime sludge from coking operations.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Naphthalene	91-20-3	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Cyanides (Total)[7]	57-12-5	1.2	590
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.	Antimony	7440-36-0	NA	2.1 mg/l TCLP
		Arsenic	7440-38-2	NA	5.0 mg/l TCLP
		Barium	7440-39-3	NA	7.6 mg/l TCLP
		Beryllium	7440-41-7	NA	0.014 mg/l TCLP
		Cadmium	7440-43-9	0.69	0.19 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Mercury	7439-97-6	NA	0.025 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Selenium	7782-49-2	NA	0.16 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
		Thallium	7440-28-0	NA	0.078 mg/l TCLP
		Zinc	7440-66-6	NA	5.3 mg/l TCLP
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (standard industrial codes 331 and 332).	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	NA
K069	Emission control dust/sludge from secondary lead smelting. - Calcium Sulfate (Low Lead) Subcategory	Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
	Emission control dust/sludge from secondary lead smelting. - Non-calcium sulfate (high lead) subcategory	NA	NA	NA	RLEAD
K071	K071 (Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used) nonwastewaters that are residues from RMERC.	Mercury	7439-97-6	NA	0.02 mg/l TCLP
	K071 (Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used) nonwastewaters that are not residues from RMERC.	Mercury	7439-97-6	NA	0.025 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
	All K071 wastewaters.	Mercury	7439-97-6	0.15	NA
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Hexachloroethane	67-72-1	0.055	30
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
K083	Distillation bottoms from aniline production.	Aniline	62-53-3	0.81	14
		Benzene	71-43-2	0.14	10
		Cyclohexanone	108-94-1	0.36	NA
		Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122-39-4	0.92	13
		Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	13
		Nitrobenzene	98-95-3	0.068	14
		Phenol	108-95-2	0.039	6.2
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes.	Benzene	71-43-2	0.14	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Chlorobenzene	108-90-7	0.057	6.0
		m-Dichlorobenzene	541-73-1	0.036	6.0
		o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Total PCBs (sum of all PCB isomers, or all Aroclors)	1336-36-3	0.10	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K086	Solvent wastes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	Acetone	67-64-1	0.28	160
		Acetophenone	96-86-2	0.010	9.7
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		n-Butyl alcohol	71-36-3	5.6	2.6
		Butylbenzyl phthalate	85-68-7	0.017	28
		Cyclohexanone	108-94-1	0.36	NA
		o-Dichlorobenzene	95-50-1	0.088	6.0
		Diethyl phthalate	84-66-2	0.20	28
		Dimethyl phthalate	131-11-3	0.047	28
		Di-n-butyl phthalate	84-74-2	0.057	28

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Di-n-octyl phthalate	117-84-0	0.017	28
		Ethyl acetate	141-78-6	0.34	33
		Ethylbenzene	100-41-4	0.057	10
		Methanol	67-56-1	5.6	NA
		Methyl ethyl ketone	78-93-3	0.28	36
		Methyl isobutyl ketone	108-10-1	0.14	33
		Methylene chloride	75-09-2	0.089	30
		Naphthalene	91-20-3	0.059	5.6
		Nitrobenzene	98-95-3	0.068	14
		Toluene	108-88-3	0.080	10
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K087	Decanter tank tar sludge from coking operations.	Acenaphthylene	208-96-8	0.059	3.4
		Benzene	71-43-2	0.14	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Chrysene	218-01-9	0.059	3.4
		Fluoranthene	206-44-0	0.068	3.4
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K088	Spent potliners from primary aluminum reduction.	Acenaphthene	83-32-9	0.059	3.4
		Anthracene	120-12-7	0.059	3.4
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene	205-99-2	0.11	6.8
		Benzo(k)fluoranthene	207-08-9	0.11	6.8
		Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Fluoranthene	206-44-0	0.068	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Indeno(1,2,3-c,d)pyrene	193-39-5	0.0055	3.4
		Phenanthrene	85-01-8	0.059	5.6
		Pyrene	129-00-0	0.067	8.2
		Antimony	7440-36-0	1.9	2.1 mg/l TCLP
		Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
		Barium	7440-39-3	1.2	7.6 mg/l TCLP
		Beryllium	7440-41-7	0.82	0.014 mg/l TCLP
		Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Mercury	7439-97-6	0.15	0.025 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Selenium	7782-49-2	0.82	0.16 mg/l TCLP
		Silver	7440-22-4	0.43	0.30 mg/l TCLP
		Cyanide (Total)	57-12-5	1.2	590
		Cyanide (Amenable)	57-12-5	0.86	30
		Fluoride	16984-48-8	35	48 mg/l TCLP
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.	Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	100-21-0	0.055	28

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	85-44-9	0.055	28
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.	Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	100-21-0	0.055	28
		Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	85-44-9	0.055	28
K095	Distillation bottoms from the production of 1,1,1-trichloroethane.	Hexachloroethane	67-72-1	0.055	30
		Pentachloroethane	76-01-7	0.055	6.0
		1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	m-Dichlorobenzene	541-73-1	0.036	6.0
		Pentachloroethane	76-01-7	0.055	6.0
		1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.	Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
		Heptachlor	76-44-8	0.0012	0.066
		Heptachlor epoxide	1024-57-3	0.016	0.066
		Hexachlorocyclopentadiene	77-47-4	0.057	2.4
K098	Untreated process wastewater from the production of toxaphene.	Toxaphene	8001-35-2	0.0095	2.6
K099	Untreated wastewater from the production of 2,4-D.	2,4-Dichlorophenoxyacetic acid	94-75-7	0.72	10
		HxCDDs (All Hexa-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Penta-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		TCDDs (All Tetra-chlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.	Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	o-Nitroaniline	88-74-4	0.27	14
		Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
		Cadmium	7440-43-9	0.69	NA
		Lead	7439-92-1	0.69	NA
		Mercury	7439-97-6	0.15	NA
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	o-Nitrophenol	88-75-5	0.028	13
		Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
		Cadmium	7440-43-9	0.69	NA
		Lead	7439-92-1	0.69	NA
		Mercury	7439-97-6	0.15	NA
K103	Process residues from aniline extraction from the production of aniline.	Aniline	62-53-3	0.81	14
		Benzene	71-43-2	0.14	10
		2,4-Dinitrophenol	51-28-5	0.12	160
		Nitrobenzene	98-95-3	0.068	14
		Phenol	108-95-2	0.039	6.2
K104	Combined wastewater streams generated from nitrobenzene/aniline production.	Aniline	62-53-3	0.81	14
		Benzene	71-43-2	0.14	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		2,4-Dinitrophenol	51-28-5	0.12	160
		Nitrobenzene	98-95-3	0.068	14
		Phenol	108-95-2	0.039	6.2
		Cyanides (Total)[7]	57-12-5	1.2	590
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	Benzene	71-43-2	0.14	10
		Chlorobenzene	108-90-7	0.057	6.0
		2-Chlorophenol	95-57-8	0.044	5.7
		o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Phenol	108-95-2	0.039	6.2
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
K106	K106 (wastewater treatment sludge from the mercury cell process in chlorine production) nonwastewaters that contain greater than or equal to 260 mg/kg total mercury.	Mercury	7439-97-6	NA	RMERC
	K106 (wastewater treatment sludge from the mercury cell process in chlorine production) nonwastewaters that contain less than 260 mg/kg total mercury that are residues from RMERC.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	Other K106 nonwastewaters that contain less than 260 mg/kg total mercury and are not residues from RMERC.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All K106 wastewaters.	Mercury	7439-97-6	0.15	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	CMBST; or CHOXD fb CARBN; or BIODG fb CARBN	CMBST
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	CMBST; or CHOXD fb CARBN; or BIODG fb CARBN	CMBST
K109	Spent filter cartridges from product purification from the production of 1,1-dimethyhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	CMBST; or CHOXD fb CARBN; or BIODG fb CARBN	CMBST
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	CMBST; or CHOXD fb CARBN; or BIODG fb CARBN	CMBST
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene	2,4-Dinitrotoluene	121-1-1	0.32	140
		2,6-Dinitrotoluene	606-20-2	0.55	28
K112	Reaction byproduct water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	NA	CMBST; or CHOXD fb CARBN; or BIODG fb CARBN	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	NA	CARBN; or CMBST	CMBST
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	NA	CARBN; or CMBST	CMBST
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		NA	NA	CARBN; or CMBST	CMBST
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	NA	NA	CARBN; or CMBST	CMBST
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
		Chloroform	67-66-3	0.046	6.0
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
K118	Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
		Chloroform	67-66-3	0.046	6.0
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.	NA	NA	CMBST; or CHOXD fb (BIODG or CARBN)	CMBST
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.	NA	NA	CMBST; or CHOXD fb (BIODG or CARBN)	CMBST
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.	NA	NA	CMBST; or CHOXD fb (BIODG or CARBN)	CMBST
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.	NA	NA	CMBST; or CHOXD fb (BIODG or CARBN)	CMBST
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
		Chloroform	67-66-3	0.046	6.0
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
K140	Waste solids and filter cartridges from the production of 2,4,6-tribromophenol.	2,4,6-Tribromophenol	118-79-6	0.035	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke or the recovery of coke byproducts produced from coal. This listing does not include K087 (decanter tank tar sludge from coking operations).	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-2-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke byproducts produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke byproducts produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke byproducts produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K145	Residues from naphthalene collection and recovery operations from the recovery of coke byproducts produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Naphthalene	91-20-3	0.059	5.6
K147	Tar storage tank residues from coal tar refining.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K148	Residues from coal tar distillation, including, but not limited to, still bottoms.	Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K149	Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. (This waste does not include still bottoms from the distillations of benzyl chloride.)	Chlorobenzene	108-90-7	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Chloromethane	74-87-3	0.19	30
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		Toluene	108-88-3	0.080	10
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Chloromethane	74-87-3	0.19	30
		p-Dichlorobenzene	106-46-7	0.090	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Hexachlorobenzene	118-74-1	0.055	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		1,1,2,2- Tetrachlorotehane	79-34-5	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	Benzene	71-43-2	0.14	10
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		Tetrachloroethylene	127-18-4	0.056	6.0
		Toluene	108-88-3	0.080	10
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes[10].	Acetonitrile	75-05-8	5.6	38
		Acetophenone	96-86-2	0.010	9.7
		Aniline	62-53-3	0.81	14
		Benomyl	17804-35-2	0.056	1.4
		Benzene	71-43-2	0.14	10
		Carbaryl	63-25-21	0.006	0.14

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Carbenzadim	10605-21-7	0.056	1.4
		Carbofuran	1563-66-2	0.006	0.14
		Carbosulfan	55285-14-8	0.028	1.4
		Chlorobenzene	108-90-7	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		o-Dichlorobenzene	95-50-1	0.088	6.0
		Methomyl	16752-77-5	0.028	0.14
		Methylene chloride	75-09-2	0.089	30
		Methyl ethyl ketone	78-93-3	0.28	36
		Naphthalene	91-20-3	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyridine	110-86-1	0.014	16
		Toluene	108-88-3	0.080	10
		Triethylamine	121-44-8	0.081	1.5
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes[10].	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Chloromethane	74-87-3	0.19	30
		Methomyl	16752-77-5	0.028	0.14
		Methylene chloride	75-09-2	0.089	30
		Methyl ethyl ketone	78-93-3	0.28	36

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		o-Phenylenediamine	95-54-5	0.056	5.6
		Pyridine	110-86-1	0.014	16
		Triethylamine	121-44-8	0.081	1.5
K158	Bag house dusts and filter/separation solids from the production of carbamates and carbamoyl oximes[10].	Benomyl	17804-35-2	0.056	1.4
		Benzene	71-43-2	0.14	10
		Carbenzadim	10605-21-7	0.056	1.4
		Carbofuran	1563-66-2	0.006	0.14
		Carbosulfan	55285-14-8	0.028	1.4
		Chloroform	67-66-3	0.046	6.0
		Methylene chloride	75-09-2	0.089	30
		Phenol	108-95-2	0.039	6.2
K159	Organics from the treatment of thiocarbamate wastes[10].	Benzene	71-43-2	0.14	10
		Butylate	2008-41-5	0.042	1.4
		EPTC (Eptam)	759-94-4	0.042	1.4
		Molinate	2212-67-1	0.042	1.4
		Pebulate	1114-71-2	0.042	1.4
		Vernolate	1929-77-7	0.042	1.4
K160	Solids (including filter wastes, separation solids, and spent catalysts) from the production of thiocarbamates and solids from the treatment of thiocarbamate wastes[10].	Butylate	2008-41-5	0.042	1.4
		EPTC (Eptam)	759-94-4	0.042	1.4
		Molinate	2212-67-1	0.042	1.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Pebulate	1114-71-2	0.042	1.4
		Toluene	108-88-3	0.080	10
		Vernolate	1929-77-7	0.042	1.4
K161	Purification solids (including filtration, evaporation, and centrifugation solids), baghouse dust and floor sweepings, from the production of dithiocarbamate acids and their salts[10].	Antimony	7440-36-0	1.9	2.1 mg/l TCLP
		Arsenic	7440-38-2	1.9	5.0 mg/l TCLP
		Carbon disulfide	75-15-0	3.8	4.8 mg/l TCLP
		Dithiocarbamates (total)	NA	0.028	28
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Selenium	7782-49-2	0.82	0.16 mg/l TCLP
P001	Warfarin, and salts, when present at concentrations greater than 0.3%.	Warfarin	81-81-2	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P002	1-Acetyl-2-thiourea	1-Acetyl-2-thiourea	591-08-2	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P003	Acrolein	Acrolein	107-02-8	0.29	CMBST
P004	Aldrin	Aldrin	309-00-2	0.021	0.066

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P005	Allyl alcohol	Allyl alcohol	107-18-6	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P006	Aluminum phosphide	Aluminum phosphide	20859-73-8	CHOXD; CHRED; or CMBST	CHOXD; CHRED; or CMBST
P007	5-Aminomethyl 3-isoxazolol	5-Aminomethyl 3-isoxazolol	2763-96-4	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P008	4-Aminopyridine	4-Aminopyridine	504-24-5	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P009	Ammonium picrate	Ammonium picrate	131-74-8	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
P010	Arsenic acid	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P011	Arsenic pentoxide	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P012	Arsenic trioxide	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P013	Barium cyanide	Barium	7440-39-3	NA	7.6 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P014	Thiophenol (Benzene thiol)	Thiophenol (Benzene thiol)	108-98-5	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P015	Beryllium dust	Beryllium	7440-41-7	RMETL;or RTHRM	RMETL; or RTHRM
P016	Dichloromethyl ether (Bis(chloromethyl)ether)	Dichloromethyl ether	542-88-1	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P017	Bromoacetone	Bromoacetone	598-31-2	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P018	Brucine	Brucine	357-57-3	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P020	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	0.066	2.5
P021	Calcium cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P022	Carbon disulfide	Carbon disulfide	75-15-0	3.8	CMBST
		Carbon disulfide; alternate[6] standard for nonwastewaters only	75-15-0	NA	4.8 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P023	Chloroacetaldehyde	Chloroacetaldehyde	107-20-0	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P024	p-Chloroaniline	p-Chloroaniline	106-47-8	0.46	16
P026	1-(o-Cholorphenyl)thiourea	1-(o-Cholorphenyl)thiourea	5344-82-1	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P027	3-Chloropropionitrile	3-Chloropropionitrile	542-76-7	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P028	Benzyl chloride	Benzyl chloride	100-44-7	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P029	Copper cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P030	Cyanides (soluble salts and complexes)	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P031	Cyanogen	Cyanogen	460-19-5	CHOXD; WETOX; or CMBST	CHOXD; WETOX; or CMBST
P033	Cyanogen chloride	Cyanogen chloride	506-77-4	CHOXD; WETOX; or CMBST	CHOXD; WETOX; or CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P034	2-Cyclohexly-4,6-dinitrophenol	2-Cyclohexly-4,6-dinitrophenol	131-89-5	(WETOX or CHOXD) fb CARBN; or CBMST	CMBST
P036	Dichlorophenylarsine	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P037	Dieldrin	Dieldrin	60-57-1	0.017	0.13
P038	Diethylarine	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P039	Disulfoton	Disulfoton	298-04-4	0.017	6.2
P040	0,0-Diethyl O-pyrazinyl phosphorothioate	0,0-Diethyl O-pyrazinyl phosphorothioate	297-97-2	CARBN; or CMBST	CMBST
P041	Diethyl-p-nitrophenyl phosphate	Diethyl-p-nitrophenyl phosphate	311-45-5	CARBN; or CMBST	CMBST
P042	Epinephrine	Epinephrine	51-43-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P043	Diisopropylfluorophosphate (DFP)	Diisopropylfluorophosphate (DFP)	55-91-4	CARBN; or CMBST	CMBST
P044	Dimethoate	Dimethoate	60-51-5	CARBN; or CMBST	CMBST
P045	Thiofanox	Thiofanox	39196-18-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P046	alpha, alpha-Dimethylphenethylamine	alpha, alpha-Dimethylphenethylamine	122-09-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P047	4,6-Dinitro-o-cresol	4,6-Dinitro-o-cresol	543-52-1	0.28	160
	4,6-Dinitro-o-cresol salts	NA	NA	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P048	2,4-Dinitrophenol	2,4-Dinitrophenol	51-28-5	0.12	160
P049	Dithiobiuret	Dithiobiuret	541-53-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P050	Endosulfan	Endosulfan I	939-98-8	0.023	0.066
		Endosulfan II	33213-6-5	0.029	0.13
		Endosulfan sulfate	1031-07-8	0.029	0.13
P051	Endrin	Endrin	72-20-8	0.0028	0.13
		Endrin aldehyde	7421-93-4	0.025	0.13
P054	Aziridine	Aziridine	151-56-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P056	Fluorine	Fluoride (measured in wastewaters only)	16964-48-8	35	ADGAS fb NEUTR

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P057	Fluoroacetamide	Fluoroacetamide	640-19-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P058	Fluoroacetic acid, sodium salt	Fluoroacetic acid, sodium salt	62-74-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P059	Heptachlor	Heptachlor	76-44-8	0.0012	0.066
		Heptachlor epoxide	1024-57-3	0.016	0.066
P060	Isodrin	Isodrin	465-73-6	0.021	0.066
P062	Hexaethyl tetraphosphate	Hexaethyl tetraphosphate	757-58-4	CARBN; or CMBST	CMBST
P063	Hydrogen cyanide	Cyandies (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P064	Isocyanic acid, ethyl ester	Isocyanic acid, ethyl ester	624-83-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P065	Mercury fulminate nonwastewaters, regardless of their total mercury content, that are not incinerator residues or are not residues from RMERC.	Mercury	7439-97-6	NA	IMERC
	Mercury fulminate nonwastewaters that are either incinerator residues or are residues from RMERC; and contain greater than or equal to 260 mg/kg total mercury.	Mercury	7339-97-6	NA	RMERC

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
	Mercury fulminate nonwastewaters that are residues from RMERC and contain less than 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	Mercury fulminate nonwastewaters that are incinerator residues and contain less than 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All mercury fulminate wastewaters.	Mercury	7439-97-6	0.15	NA
P066	Methomyl	Methomyl	16752-77-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P067	2-Methyl-aziridine	2-Methyl-aziridine	75-55-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P068	Methyl hydrazine	Methyl hydrazine	60-34-4	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED, or CMBST
P069	2-Methyllactonitrile	2-Methyllactonitrile	75-86-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P070	Aldicarb	Aldicarb	116-06-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P071	Methyl parathion	Methyl parathion	298-00-0	0.014	4.6

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P072	1-Naphthyl-2-thiourea	1-Naphthyl-2-thiourea	86-88-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P073	Nickel carbonyl	Nickel	7440-02-0	3.98	5.0 mg/l TCLP
P074	Nickel-cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable[7]	57-12-5	0.86	30
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
P075	Nicotine and salts	Nicotine and salts	54-11-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P076	Nitric oxide	Nitric oxide	10102-43-9	ADGAS	ADGAS
P077	p-Nitroaniline	p-Nitroaniline	100-01-6	0.028	28
P078	Nitrogen dioxide	Nitrogen dioxide	10102-44-0	ADGAS	ADGAS
P081	Nitroglycerin	Nitroglycerin	55-63-0	CHOXD; CHRED; CARBN; BIODG or CMBST	CHOXD; CHRED; or CMBST
P082	N-Nitrosodimethylamine	N-Nitrosodimethylamine	62-75-9	0.40	2.3
P084	N-Nitrosomethylvinylamine	N-Nitrosomethylvinylamine	4549-40-0	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P085	Octamethylpyrophosphoramide	Octamethylpyrophosphoramide	152-16-9	CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P087	Osmium tetroxide	Osmium tetroxide	20816-12-0	RMETL; or RTHRM	RMETL; or RTHRM
P088	Endothall	Endothall	145-73-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P089	Parathion	Parathion	56-38-2	0.014	4.6
P092	Phenyl mercuric acetate nonwastewaters, regardless of their total mercury content, that are not incinerator residues or are not residues from RMERC.	Mercury	7439-97-6	NA	IMERC; or RMERC
	Phenyl mercuric acetate nonwastewaters that are either incinerator residues or are residues from RMERC; and still contain greater than or equal to 260 mg/kg total mercury.	Mercury	7439-97-6	NA	RMERC
	Phenyl mercuric acetate nonwastewaters that are residues from RMERC and contain less than 160 mg/kg total mercury.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	Phenyl mercuric acetate nonwastewaters that are incinerator residues and contain less then 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All phenyl mercuric acetate wastewaters.	Mercury	7439-97-6	0.15	NA
P093	Phenylthiourea	Phenylthiourea	103-85-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P094	Phorate	Phorate	298-02-2	0.021	4.6

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P095	Phosgene	Phosgene	75-44-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P096	Phosphine	Phosphine	7803-51-2	CHOXD; CHRED; or CMBST	CHOXD; CHRED; or CMBST
P097	Famphur	Famphur	52-85-7	0.017	15
P098	Potassium cyanide.	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	.086	30
P099	Potassium silver cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Ameniable)[7]	57-12-5	0.86	30
		Silver	7440-22-4	0.43	0.30 mg/l TCLP
P0101	Ethyl cyanide (Propanenitrile)	Ethyl cyanide (Propanenitrile)	107-12-0	0.24	360
P0102	Propargyl alcohol	Propargyl alcohol	107-19-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P0103	Selenourea	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
P0104	Silver cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Silver	7440-22-4	0.43	0.30 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P0105	Sodium azide	Sodium azide	26628-22-8	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
P0106	Sodium cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P0108	Strychnine and salts	Strychnine and salts	57-24-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P109	Tetraethyldithiopyrophosphate	Tetraethyl-dithiopyrophosphate	3689-24-5	CARBN; or CMBST	CMBST
P110	Tetraethyl lead	lead	7439-92-1	0.69	0.37 mg/l TCLP
P111	Tetraethylpyrophosphate	Tetraethylpyrophosphate	107-49-3	CARBN; or CMBST	CMBST
P112	Tetranitromethane	Tetranitromethane	509-14-8	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
P113	Thallic oxide	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
P114	Thallium selenite	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
P115	Thallium (I) sulfate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
P116	Thiosemicarbazide	Thiosemicarbazide	79-19-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P118	Trichloromethanethiol	Trichloromethanethiol	75-70-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
P119	Ammonium vanadate	Vanadium (measured in wastewaters only)	7440-62-2	4.3	STABL
P120	Vanadium pentoxide	Vanadium (measured in wastewaters only)	7440-62-2	4.3	STABL
P121	Zinc cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P122	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10%	Zinc Phosphide	1314-84-7	CHOXD; CHRED; or CMBST	CHOXD; CHRED; or CMBST
P123	Toxaphene	Toxaphene	8001-35-2	0.0095	2.6
P127	Carbofuran[10]	Carbofuran	1563-66-2	0.006	0.14
P128	Mexacarbate[10]	Mexacarbate	315-18-4	0.056	1.4
P185	Tirpate[10]	Tirpate	26419-73-8	0.056	0.28
P187	Bendiocarb	Bendiocarb	22781-23-3	0.056	1.4
P188	Physostigimine salicylate[10]	Physostigmine salicylate	57-64-7	0.056	1.4
P189	Carbosulfan[10]	Carbosulfan	55285-14-8	0.028	1.4
P190	Metolcarb[10]	Metolcarb	1129-41-5	0.056	1.4
P191	Dimetilan[10]	Dimetilan	644-64-4	0.056	1.4
P192	Isolan[10]	Isolan	119-38-0	0.056	1.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P193	Thiophanate-methyl	Thiophanate-methyl	23564-05-8	0.056	1.4
P194	Oxamyl[10]	Oxamyl	23135-22-0	0.056	0.28
P195	Thiodicarb	Thiodicarb	59669-26-0	0.019	1.4
P196	Manganese dimethyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
P197	Formparanate[10]	Formparanate	17702-57-7	0.056	1.4
P198	Formetanate hydrochloride[10]	Formetanate hydrochloride	23422-53-9	0.056	1.4
P199	Methiocarb[10]	Methiocarb	2032-65-7	0.056	1.4
P200	Propoxur	Propoxur	114-26-1	0.056	1.4
P201	Promecarb[10]	Promecarb	2631-37-0	0.056	1.4
P202	M-Cumenyl methylcarbamate[10]	m-Cumenyl methylcarbamate	64-00-6	0.056	1.4
P203	Aldicarb sulfone[10]	Aldicarb sulfone	1646-88-4	0.056	0.28
P204	Physostigmine[10]	Physostigmine	57-47-6	0.056	1.4
P205	Ziram[10]	Dithiocarbamates (total)	NA	0.028	28
U001	Acetaldehyde	Acetaldehyde	75-07-0	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U002	Acetone	Acetone	67-64-1	0.28	160
U003	Acetonitrile	Acetonitrile	75-05-8	5.6	CMBST
		Acetonitrile; alternate[6] standard for nonwastewaters only	75-05-8	NA	38

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U004	Acetophenone	Acetophenone	98-86-2	0.010	9.7
U005	2-Acetylaminofluorene	2-Acetylaminofluorene	53-96-3	0.059	140
U006	Acetyl chloride	Acetyl Chloride	75-36-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U007	Acrylamide	Acrylamide	79-06-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U008	Acrylic acid	Acrylic acid	79-10-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U009	Acrylonitrile	Acrylonitrile	107-13-1	0.24	84
U010	Mitomycin C	Mitomycin C	50-07-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U011	Amitrole	Amitrole	61-82-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U012	Aniline	Aniline	62-53-3	0.81	14

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U014	Auramine	Auramine	492-80-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U015	Azaserine	Azaserine	115-02-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U016	Benz(c)acridine	Benz(c)acridine	225-51-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U017	Benzal chloride	Benzal chloride	98-87-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U018	Benz(a)anthracene	Benz(a)anthracene	56-55-3	0.059	3.4
U019	Benzene	Benzene	71-43-2	0.14	10
U020	Benzenesulfonyl chloride	Benzenesulfonyl chloride	98-09-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U021	Benzidine	Benzidine	92-87-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U022	Benzo(a)pyrene	Benzo(a)pyrene	50-32-8	0.061	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U023	Benzotrichloride	Benzotrichloride	98-07-7	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U024	bis(2-Chloroethoxy)methane	bis(2-Chloroethoxy)methane	111-91-1	0.036	7.2
U025	bis(2-Chloroethyl)ether	bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
U026	Chlornaphazine	Chlornaphazine	494-03-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U027	bis(2-Chloroisopropyl)ether	bis(2-Chloroisopropyl)ether	39638-32-9	0.055	7.2
U028	bis(2-Ethylhexyl)phthalate	bis(2-Ethylhexyl)phthalate	117-81-7	0.28	28
U029	Methyl bromide (Bromomethane)	Methyl bromide (Bromomethane)	74-83-9	0.11	15
U030	4-Bromophenyl phenyl ether	4-Bromophenyl phenyl ether	101-55-3	0.055	15
U031	n-Butyl alcohol	n-Butyl alcohol	71-36-3	5.6	2.6
U032	Calcium chromate	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
U033	Carbon oxyfluoride	Carbon oxyfluoride	353-50-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U034	Trichloroacetaldehyde (Chloral)	Trichloroacetaldehyde (Chloral)	75-87-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U035	Chlorambucil	Chlorambucil	305-03-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U036	Chlordane	Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
U037	Chlorobenzene	Chlorobenzene	108-90-7	0.057	6.0
U038	Chlorobenzilate	Chlorobenzilate	510-15-6	0.10	CMBST
U039	p-Chloro-m-cresol	p-Chloro-m-cresol	59-50-7	0.018	14
U041	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	106-89-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U042	2-Chloroethyl vinyl ether	2-Chloroethyl vinyl ether	110-75-8	0.062	CMBST
U043	Vinyl chloride	Vinyl chloride	75-01-4	0.27	6.0
U044	Chloroform	Chloroform	67-66-3	0.046	6.0
U045	Chloromethane (Methyl chloride)	Chloromethane (Methyl chloride)	74-87-3	0.19	30
U046	Chloromethyl methyl ether	Chloromethyl methyl ether	107-30-2	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U047	2-Chloronaphthalene	2-Chloronaphthalene	91-58-7	0.055	5.6
U048	2-Chlorophenol	2-Chlorophenol	95-57-8	0.044	5.7

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U049	4-Chloro-o-toluidine hydrochloride	4-Chloro-o-toluidine hydrochloride	3165-93-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U050	Chrysene	Chrysene	218-01-9	0.059	3.4
U051	Creosote	Naphthalene	91-20-3	0.059	5.6
		Pentachlorophenol	87-86-5	0.089	7.4
		Phenanthrene	85-01-8	0.059	5.6
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
U052	Cresols (Cresylic acid)	o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations)	1319-77-3	0.88	11.2

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U053	Crotonaldehyde	Crotonaldehyde	4170-30-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U055	Cumene	Cumene	98-82-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U056	Cyclohexane	Cyclohexane	110-82-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U057	Cyclohexanone	Cyclohexanone	108-94-1	0.36	CMBST
		Cyclohexanone; alternate[6] standard for nonwastewaters only	108-94-1	NA	0.75 mg/l TCLP
U058	Cyclophosphamide	Cyclophosphamide	50-18-0	CARBN; or CMBST	CMBST
U059	Daunomycin	Daunomycin	20830-81-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U060	DDD	o,p'-DDD	53-19-0	0.023	0.087
		p,p'-DDD	72-54-8	0.023	0.087
U061	DDT	o,p'-DDT	789-02-6	0.0039	0.087
		p,p'-DDT	50-29-3	0.0039	0.087

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		o,p'-DDD	53-19-0	0.023	0.087
		p,p'-DDD	72-54-8	0.023	0.087
		o,p'-DDE	3424-82-6	0.031	0.087
		p,p'-DDE	72-55-9	0.031	0.087
U062	Diallate	Diallate	2303-16-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U063	Dibenz(a,h)anthracene	Dibenz(a,h)anthracene	53-70-3	0.055	8.2
U064	Dibenz(a,i)pyrene	Dibenz(a,i)pyrene	189-55-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U066	1,2-Dibromo-3-chloropropane	1,2-Dibromo-3-chloropropane	96-12-8	0.11	15
U067	Ethylene dibromide (1,2-Dibromoethane)	Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
U068	Dibromomethane	Dibromomethane	74-95-3	0.11	15
U069	Di-n-butyl phthalate	Di-n-butyl phthalate	84-74-2	0.057	28
U070	o-Dichlorobenzene	o-Dichlorobenzene	95-50-1	0.088	6.0
U071	m-Dichlorobenzene	m-Dichlorobenzene	541-73-1	0.036	6.0
U072	p-Dichlorobenzene	p-Dichlorobenzene	106-46-7	0.090	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U073	3,3'-Dichlorobenzidine	3,3'-Dichlorobenzidine	91-94-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U074	1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1476-11-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
		trans-1,4-Dichloro-2-butene	764-41-0	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U075	Dichlorodifluoromethane	Dichlorodifluoromethane	75-71-8	0.23	7.2
U076	1,1-Dichloroethane	1,1-Dichloroethane	75-34-3	0.059	6.0
U077	1,2-Dichloroethane	1,2-Dichloroethane	107-06-2	0.21	6.0
U078	1,1-Dichloroethylene	1,1-Dichloroethylene	75-35-4	0.025	6.0
U079	1,2-Dichloroethylene	trans-1,2-Dichloroethylene	156-60-5	0.054	30
U080	Methylene chloride	Methylene chloride	75-09-2	0.089	30
U081	2,4-Dichlorophenol	2,4-Dichlorophenol	120-83-2	0.044	14
U082	2,6-Dichlorophenol	2,6-Dichlorophenol	87-65-0	0.044	14
U083	1,2-Dichloropropane	1,2-Dichloropropane	78-87-5	0.85	18
U084	1,3-Dichloropropylyene	cis-1,3-Dichloropropylyene	10061-01-5	0.036	18
		trans-1,3-Dichloropropylyene	10061-02-6	0.036	18

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U085	1,2:3,4-Diepoxybutane	1,2:3,4-Diepoxybutane	1464-53-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U086	N,N'-Diethylhydrazine	N,N'-Diethylhydrazine	1615-80-1	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U087	O,O-Diethyl S-methyldithiophosphate	O,O-Diethyl S-methyldithiophosphate	3288-58-2	CARBN; CMBST	CMBST
U088	Diethyl phthalate	Diethyl phthalate	84-66-2	0.20	28
U089	Diethyl stilbestrol	Diethyl stilbestrol	56-53-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U090	Dihydrosafrole	Dihydrosafrole	94-58-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U091	3,3'-Dimethoxybenzidine	3,3'-Dimethoxybenzidine	119-90-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U092	Dimethylamine	Dimethylamine	124-40-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U093	p-Dimethylaminoazobenzene	p-Dimethylaminoazobenzene	60-11-7	0.13	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U094	7,12-Dimethylibenz(a)anthracene	7,12-Dimethylbenz(a)anthracene	57-97-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U095	3,3'-Dimethylbenzidine	3,3'-Dimethylbenzidine	119-93-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U096	alpha, alpha-Dimethyl benzyl hydroperoxide	alpha, alpha-Dimethyl benzyl hydroperoxide	80-15-9	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U097	Dimethylcarbamoyl chloride	Dimethylcarbamoyl chloride	79-44-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U098	1,1-Dimethylhydrazine	1,1-Dimethylhydrazine	57-14-7	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U099	1,2-Dimethylhydrazine	1,2-Dimethylhydrazine	540-73-8	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U101	2,4-Dimethylphenol	2,4-Dimethylphenol	105-67-9	0.036	14
U102	Dimethyl phthalate	Dimethyl phthalate	131-11-3	0.047	28
U103	Dimethyl sulfate	Dimethyl sulfate	77-78-1	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U105	2,4-Dinitrotoluene	2,4-Dinitrotoluene	121-14-2	0.32	140

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U106	2,6-Dinitrotoluene	2,6-Dinitrotoluene	606-20-2	0.55	28
U107	Di-n-octyl phthalate	Di-n-octyl phthalate	117-84-0	0.017	28
U108	1,4-Dioxane	1,4-Dioxane	123-91-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
		1,4-Dioxane; alternate[6] standard for nonwastewaters only	123-91-1	NA	170
U109	1,2-Diphenylhydrazine	1,2-Diphenylhydrazine	122-66-7	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
		1,2-Diphenylhydrazine; alternate[6] standard for wastewaters only	122-66-7	0.087	NA
U110	Dipropylamine	Dipropylamine	142-84-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U111	Di-n-propylnitrosamine	Di-n-propylnitrosamine	621-64-7	0.40	14
U112	Ethyl acetate	Ethyl acetate	141-78-6	0.34	33
U113	Ethyl acrylate	Ethyl acrylate	140-88-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U114	Ethylenebisdithiocarbamic acid salts and esters	Ethylenebisdithiocarbamic acid	111-54-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U115	Ethylene oxide	Ethylene oxide	75-21-8	(WETOX or CHOXD) fb CARBN; or CMBST	CHOXD; or CMBST
		Ethylene oxide; alternate [6] standard for wastewaters only	75-21-8	0.12	NA
U116	Ethylene thiourea	Ethylene thiourea	96-45-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U117	Ethyl ether	Ethyl ether	60-29-7	0.12	160
U118	Ethyl methacrylate	Ethyl methacrylate	97-63-2	0.14	160
U119	Ethyl methane sulfonate	Ethyl methane sulfonate	62-50-0	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U120	Fluoranthene	Fluoranthene	206-44-0	0.068	3.4
U121	Trichloromonofluoromethane	Trichloromonofluoromethane	75-69-4	0.020	30
U122	Formaldehyde	Formaldehyde	50-00-0	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U123	Formic acid	Formic acid	64-18-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U124	Furan	Furan	110-00-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U125	Furfural	Furfural	98-01-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U126	Glycidylaldehyde	Glycidylaldehyde	765-34-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U127	Hexachlorobenzene	Hexachlorobenzene	118-74-1	0.055	10
U128	Hexachlorobutadiene	Hexachlorobutadiene	87-68-3	0.055	5.6
U129	Lindane	alpha-BHC	319-84-6	0.00014	0.066
		beta-BHC	319-85-7	0.00014	0.066
		delta-BHC	319-86-8	0.023	0.066
		gamma-BHC (Lindane)	58-89-9	0.0017	0.066
U130	Hexachlorocyclopentadiene	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
U131	Hexachloroethane	Hexachloroethane	67-72-1	0.055	30

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U132	Hexachlorophene	Hexachlorophene	70-30-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U133	Hydrazine	Hydrazine	302-01-2	CHOXD; CHRED; CARBN; DIOXG; or CMBST	CHOXD; CHRED; or CMBST
U134	Hydrogen fluoride	Fluoride (measured in wastewaters only)	16964-48-8	35	ADGAS fb NEUTR; or NEUTR
U135	Hydrogen Sulfide	Hydrogen Sulfide	7783-06-4	CHOXD; CHRED; or CMBST	CHOXD; CHRED; or CMBST
U136	Cacodylic acid	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
U137	Indeno(1,2,3-cd)pyrene	Indeno(1,2,3-c, d)pyrene	193-39-5	0.0055	3.4
U138	Iodomethane	Iodomethane	74-88-4	0.19	65
U140	Isobutyl alcohol	Isobutyl alcohol	78-83-1	5.6	170
U141	Isosafrole	Isosafrole	120-58-1	0.081	2.6
U142	Kepone	Kepone	143-50-8	0.0011	0.13
U143	Lasiocarpine	Lasiocarpine	303-34-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U144	Lead acetate	Lead	7439-92-1	0.69	0.37 mg/l TCLP
U145	Lead phosphate	Lead	7439-92-1	0.69	0.37 mg/l TCLP
U146	Lead subacetate	Lead	7439-92-1	0.69	0.37 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U147	Maleic anhydride	Maleic anhydride	108-31-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U148	Maleic hydrazide	Maleic hydrazide	123-33-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U149	Malononitrile	Malononitrile	109-77-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U150	Melphalan	Melphalan	148-82-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U151	U151 (mercury) nonwastewaters that contain greater than or equal to 260 mg/kg total mercury.	Mercury	7439-97-6	NA	RMERC
	U151 (mercury) nonwastewaters that contain less than 260 mg/kg total mercury and that are residues from RMERC only.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	U151 (mercury) nonwastewaters that contain less than 260 mg/kg total mercury and that are not residues from RMERC.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All U151 (mercury) wastewaters.	Mercury	7439-97-6	0.15	NA
	Elemental mercury contaminated with radioactive materials.	Mercury	7439-97-6	NA	AMLGM

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U152	Methacrylonitrile	Methacrylonitrile	126-98-7	0.24	84
U153	Methanethiol	Methanethiol	74-93-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U154	Methanol	Methanol	67-56-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
		Methanol, alternate[6] set of standards for both wastewaters and nonwastewaters	67-56-1	5.6	0.75 mg/l TCLP
U155	Methapyrilene	Methapyrilene	91-80-5	0.081	1.5
U156	Methyl chlorocarbonate	Methyl chlorocarbonate	79-22-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U157	3-Methylcholanthrene	3-Methylcholanthrene	56-49-5	0.0055	15
U158	4,4'-Methylene bis(2-chloroaniline)	4,4'-Methylene bis(2-chloroaniline)	101-14-4	0.50	30
U159	Methyl ethyl ketone	Methyl ethyl ketone	78-93-3	0.28	36
U160	Methyl ethyl ketone peroxide	Methyl ethyl ketoneperoxide	1338-23-4	CHOXD; CHRED; CARBN; BIODG; or CMBST	CHOXD; CHRED; or CMBST
U161	Methyl isobutyl ketone	Methyl isobutyl ketone	108-10-1	0.14	33
U162	Methyl methacrylate	Methyl methacrylate	80-62-6	0.14	160

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U163	N-Methyl N'-nitro N-nitrosoguanidine	N-Methyl N'-nitro N-nitrosoguanidine	70-25-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U164	Methylthiouracil	Methylthiouracil	56-04-2	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U165	Naphthalene	Naphthalene	91-20-3	0.059	5.6
U166	1,4-Naphthoquinone	1,4-Naphthoquinone	130-15-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U167	1-Naphthlyamine	1-Naphthlyamine	134-32-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U168	2-Naphthlyamine	2-Naphthlyamine	91-59-8	0.52	CMBST
U169	Nitrobenzene	Nitrobenzene	98-95-3	0.068	14
U170	p-Nitrophenol	p-Nitrophenol	100-02-7	0.12	29
U171	2-Nitropropane	2-Nitropropane	79-46-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U172	N-Nitrosodi-n-butylamine	N-Nitrosodi-n-butylamine	924-16-3	0.40	17

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U173	N-Nitrosodiethanolamine	N-Nitrosodiethanolamine	1116-54-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U174	N-Nitrosodiethylamine	N-Nitrosodiethylamine	55-18-5	0.40	28
U176	N-Nitroso-N-ethylurea	N-Nitroso-N-ethylurea	759-73-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U177	N-Nitroso-N-methylurea	N-Nitroso-N-methylurea	684-93-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U178	N-Nitroso-N-methylurethane	N-Nitroso-N-methylurethane	615-53-2	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U179	N-Nitrosopiperidine	N-Nitrosopiperidine	100-75-4	0.013	35
U180	N-Nitrosopyrrolidine	N-Nitrosopyrrolidine	930-55-2	0.013	35
U181	5-Nitro-o-toluidine	5-Nitro-o-toluidine	99-55-8	0.32	28
U182	Paraldehyde	Paraldehyde	123-63-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U183	Pentachlorobenzene	Pentachlorobenzene	608-93-5	0.055	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U184	Pentachloroethane	Pentachloroethane	76-01-7	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
		Pentachloroethane; alternate[6] standards for both wastewaters and nonwastewaters	76-01-7	0.055	6.0
U185	Pentachloronitrobenzene	Pentachloronitrobenzene	82-68-8	0.055	4.8
U186	1,3-Pentadiene	1,3-Pentadiene	504-60-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U187	Phenacetin	Phenacetin	62-44-2	0.081	16
U188	Phenol	Phenol	108-95-2	0.039	6.2
U189	Phosphorus sulfide	Phosphorus sulfide	1314-80-3	CHOXD; CHRED; or CMBST	CHOXD; CHRED; or CMBST
U190	Phthalic anhydride (measured as phthalic acid or terephthalic acid).	Phthalic anhydride (measured as Phthalic acid or Terephthalic acid)	100-21-0	0.055	28
		Phthalic anhydride	85-44-9	0.055	28
U191	2-Picoline	2-Picoline	109-06-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U192	Pronamide	Pronamide	23950-58-5	0.093	1.5

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U193	1,3-Propane sultone	1,3-Propane sultone	1120-71-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U194	n-Propylamine	n-Propylamine	107-10-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U196	Pyridine	Pyridine	110-86-1	0.014	16
U197	p-Benzoquinone	p-Benzoquinone	106-51-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U200	Reserpine	Reserpine	50-55-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U201	Resorcinol	Resorcinol	108-46-3	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U202	Saccharin and salts	Saccharin	81-07-2	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U203	Safrole	Safrole	94-59-7	0.081	22
U204	Selenium dioxide	Selenium	7782-49-2	0.82	0.16 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U205	Selenium sulfide	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
U206	Streptozotocin	Streptozotocin	18883-66-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U207	1,2,4,5-Tetrachlorobenzene	1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
U208	1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
U209	1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
U210	Tetrachloroethylene	Tetrachloroethylene	127-18-4	0.056	6.0
U211	Carbon tetrachloride	Carbon tetrachloride	56-23-5	0.057	6.0
U213	Tetrahydrofuran	Tetrahydrofuran	109-99-9	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U214	Thallium (I) acetate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
U215	Thallium (I) carbonate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
U216	Thallium (I) chloride	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
U217	Thallium (I) nitrate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U218	Thioacetamide	Thioacetamide	62-55-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U219	Thiourea	Thiourea	62-56-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U220	Toluene	Toluene	108-88-3	0.080	10
U221	Toluenediamine	Toluenediamine	25376-45-8	CARBN; or CMBST	CMBST
U222	o-Toluidine hydrochloride	o-Toluidine hydrochloride	636-21-5	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U223	Toluene diisocyanate	Toluene diisocyanate	26471-62-5	CARBN; or CMBST	CMBST
U225	Bromoform (Tribromomethane)	Bromoform (Tribromomethane)	75-25-2	0.63	15
U226	1,1,1-Trichloroethane	1,1,1-Trichloroethane	71-55-6	0.054	6.0
U227	1,1,2-Trichloroethane	1,1,2-Trichloroethane	79-00-5	0.054	6.0
U228	Trichloroethylene	Trichloroethylene	79-01-6	0.054	6.0
U234	1,3,5-Trinitrobenzene	1,3,5-Trinitrobenzene	99-35-4	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U235	tris-(2,3-Dibromopropyl)-phosphate	tris-(2,3-Dibromopropyl)-phosphate	126-72-7	0.11	0.10
U236	Trypan Blue	Trypan Blue	72-57-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U237	Uracil mustard	Uracil mustard	66-75-1	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U238	Urethane (Ethyl carbamate)	Urethane (Ethyl carbamate)	51-79-6	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U239	Xylenes	Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
U240	2,4-D (2,4-Dichlorophenoxyacetic acid)	2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	0.72	10
	2,4-D (2,4-Dichlorophenoxyacetic acid) salts and esters		NA	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U243	Hexachloropropylene	Hexachloropropylene	1888-71-7	0.035	30
U244	Thiram	Thiram	137-26-8	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U246	Cyanogen bromide	Cyanogen bromide	506-68-3	CHOXD; WETOX; or CMBST	CHOXD; WETOX; or CMBST
U247	Methoxychlor	Methoxychlor	72-43-5	0.25	0.18
U248	Warfarin, and salts, when present at concentrations of 0.3% or less.	Warfarin	81-81-2	(WETOX or CHOXD) fb CARBN; or CMBST	CMBST
U249	Zinc phosphide, Zn_3P_2, when present at concentrations of 10% or less.	Zinc Phosphide	1314-84-7	CHOXD; CHRED; or CMBST	CHOXD; CHRED; or CMBST
U271	Benomyl[10]	Benomyl	17804-35-2	0.056	1.4
U277	Sulfallate[10]	Dithiocarbamates (total)	NA	0.028	28
U278	Bendiocarb[10]	Bendiocarb	22781-23-3	0.056	1.4
U279	Carbaryl[10]	Carbaryl	63-25-2	0.006	0.14
U280	Barban[10]	Barban	101-27-9	0.056	1.4
U328	o-Toluidine	o-Toluidine	95-53-4	CMBST; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN.	CMBST
U353	p-Toluidine	p-Toluidine	106-49-0	CMBST; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U359	2-Ethoxyethanol	2-Ethoxyethanol	110-80-5	CMBST; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN	CMBST
U360	Carbamates, not otherwise specified	Carbamates, not otherwise specified	NA	0.056	1.4
U361	Carbamoyl Oximes, not otherwise specified	Carbamoyl Oximes, not otherwise specified	NA	0.056	0.28
U362	Thiocarbamates, not otherwise specified	Thiocarbamates, not otherwise specified	NA	0.003	1.4
U363	Dithiocarbamates (total)	Dithiocarbamates (total)	NA	0.028	28
	Antimony	Antimony	7440-36-0	1.9	2.1 mg/l TCLP
	Lead	Lead	7439-92-1	0.69	0.37 mg/l TCLP
	Nickel	Nickel	7440-02-0	3.98	5.0 mg/l TCLP
	Selenium	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
U364	Bendiocarb phenol[10]	Bendiocarb phenol	22961-82-6	0.056	1.4
U365	Molinate[10]	Molinate	2212-67-1	0.042	1.4
U366	Dazomet[10]	Dithiocarbamates (total)	NA	0.028	28
U367	Carbofuran phenol[10]	Carbofuran phenol	1563-38-8	0.056	1.4
U368	Dithiocarbamates (total)	Dithiocarbamates (total)	NA	0.028	28
	Antimony	Antimony	7440-36-0	1.9	2.1 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U369	Dithiocarbamates (total)	Dithiocarbamates (total)	NA	0.028	28
	Antimony	Antimony	7440-36-0	1.9	2.1 mg/l TCLP
U370	Dithiocarbamates (total)	Dithiocarbamates (total)	NA	0.028	28
U371	Hexazinone intermediate	Hexazinone intermediate	65086-85-3	0.056	1.4
U372	Carbendazim[10]	Carbendazim	10605-21-7	0.056	1.4
U373	Propham[10]	Propham	122-42-9	0.056	1.4
U374	U9069	U9069	112006-94-7	0.056	1.4
U375	3-Iodo-2-propynyl n-butylcarbamate[10]	3-Iodo-2-propynyl n-butylcarbamate	55406-53-6	0.056	1.4
U376	Selenium, tetrakis (dimethyldithio-carbamate)[10]	Dithiocarbamates (total)	NA	0.028	28
	Selenium	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
U377	Pottasium n-methyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U378	Potassium n-hydroxymethyl-n-methyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U379	Sodium dibutyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U381	Sodium diethyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U382	Sodium dimethyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U383	Potassium dimethyl dithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U384	Metam Sodium[10]	Dithiocarbamates (total)	NA	0.028	28
U385	Vernolate[10]	Vernolate	1929-77-7	0.042	1.4
U386	Cycloate[10]	Cycloate	1134-23-2	0.042	1.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES					
Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] No.	Concentration mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U387	Prosulfocarb[10]	Prosulfocarb	52888-80-9	0.042	1.4
U389	Triallate[10]	Triallate	2303-17-5	0.042	1.4
U390	EPTC[10]	EPTC	759-94-4	0.042	1.4
U391	Pebulate[10]	Pebulate	1114-71-2	0.042	1.4
U392	Butylate[10]	Butylate	2008-41-5	0.042	1.4
U393	Copper dimethyldithiocarbamate[10]	Dithiocarbamates (total)	NA	0.028	28
U394	A2213[10]	A2213	30558-43-1	0.042	1.4
U395	Diethylene glycol, dicarbamate[10]	Diethylene glycol, dicarbamate	5952-26-1	0.056	1.4
U396	Ferbam[10]	Dithiocarbamates (total)	NA	0.028	28
U400	Bis (pentamethylene) thiuram tetrasulfide[10]	Dithiocarbamates (total)	NA	0.028	28
U401	Tetramethyl thiuram monosulfide[10]	Dithiocarbamates (total)	NA	0.028	28
U402	Tetrabutylthiuram disulfide[10]	Dithiocarbamates (total)	NA	0.028	28
U403	Disulfiram[10]	Dithiocarbamates (total)	NA	0.028	28
U404	Triethylamine[10]	Triethylamine	101-44-8	0.081	1.5
U407	Ethyl Ziram[10]	Dithiocarbamates (total)	NA	0.028	28
U409	Thiophanate-methyl[10]	Thiophanate-methyl	23564-05-8	0.056	1.4
U410	Thiodicarb[10]	Thiodicarb	59669-26-0	0.019	1.4
U411	Propoxur[10]	Propoxur	114-26-1	0.056	1.4

Notes to Table:

1 The waste descriptions provided in this table do not replace waste descriptions in 40 CFR part 261. Descriptions of treatment/regulatory subcategories are provided, as needed, to distinguish between applicability of different standards.

2 CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with it's salts and/or esters, the CAS number is given for the parent compound only.

3 Concentration standards for wastewaters are expressed in mg/l and are based on analysis of composite samples.

4 All treatment standards expressed as a technology code or combination of Technology Codes are explained in detail in section 33-24-05-282 Table 1 - Technology Codes and Descriptions of Technology-Based Standards.

5 Except for metals (extraction procedure or toxicity characeristic leaching procedure) and cyanides (total and amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of section 33-24-05-144 through 33-24-05-159 or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in subsection 3 of section 33-24-05-280. All concentration standards for nonwastewaters are based on analysis of grab samples.

6 Where an alternate treatment standard or set of alternate standards has been indicated, a facility may comply with this alternate standard, but only for the treatment/regulatory subcategory or physical form (for example, wastewater and/or nonwastewater) specified for that alternate standard.

7 Both cyanides (total) and cyanides (amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW846, as incorporated by reference in section 33-24-01-05, with a sample size of 10 grams and a distillation time of one hour and fifteen minutes.

8 These wastes, when rendered nonhazardous and then subsequently managed in Clean Water Aact, Clean Water Act-equivalent, or lass I Safe Drinking Water Act systems are not subject to treatment standards.

9 These wastes, when rendered nonhazardous and then subsequently injected in a class I Safe Drinking Water Act well are not subject to treatment standards. (See 40 CFR section 148.1(d)).

10 Between August 26, 1996 and August 27, 1997 the treatment standard for this waste may be satisfied by either meeting the constituent concentrations of this table or by treating the waste by the specified technologies: combustion, as defined by the technology code CMBST in table 1 in section 33-24-05-282, for nonwastewaters; and, biodegradation as defined by the technology code BIODG, carbon adsorption as defined by the technology code CARBN, chemical oxidation as defined by the technology code CHOXD, or combustion as defined by the technology code CMBST in table 1 of section 33-24-05-282, for wastewaters.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-281. Treatment standards expressed as concentrations in waste extract. For the requirements previously found in this section and for treatment standards in Table CCWE-Constituent Concentrations in Waste Extracts, refer to section 33-24-05-280.

~~1. Table CCWE identifies the restricted wastes and the concentrations of their associated constituents which may not be exceeded in the extract of a waste or waste treatment residual extracted using the test method in appendix II of chapter 33-24-02 for the allowable land disposal of such wastes. Compliance with these concentrations is required based upon grab samples.~~

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Note
D004	NA	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.0	(1)
D005	NA	Table CCW in 33-24-05-283	Barium	7440-39-3	NA		100	
D006	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		1.0	
D007	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		5.0	
D008	NA	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		5.0	(1)
D009 (Low Mercury Subcategory - Less than 260 mg/kg Mercury)	NA	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.20	
D010	NA	Table CCW in 33-24-05-283	Selenium	7782-49-2	NA		5.7	
D011	NA	Table CCW in 33-24-05-283	Silver	7440-22-4	NA		5.0	
F001-F005 spent solvents	NA	Table CCW in 33-24-05-283	Carbon disulfide	75-15-0	NA		4.8	
			Cyclohexanone	108-94-1	NA		0.75	
			Methanol	67-56-1	NA		0.75	
F006	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F007	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
F008	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F009	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F011	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F012	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Nickel	7440-02-0	NA		0.32	
			Silver	7440-22-4	NA		0.072	
F019	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		5.2	
F020-F023 and F026-F028 dioxin containing wastes[2]	NA	NA	HxCDD-All Hexachloro-dibenzo-p-dioxins		<1 ppb		<1 ppb	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
			HxCDF-All Hexachlorodibenzofurans		<1 ppb		<1 ppb	
			PeCDD-All Pentachlorodibenzo-p-dioxins		<1 ppb		<1 ppb	
			PeCDF-All Pentachlorodibenzofurans		<1 ppb		<1 ppb	
			TCDD-All Tetrachlorodibenzo-p-dioxins					
			TCDF-All Tetrachlorodibenzofurans		<1 ppb		<1 ppb	
			2,4,5-Trichlorophenol	95-95-4	<0.05 ppm		<0.05 ppm	
			2,4,6-Trichlorophenol	88-06-2	<0.05 ppm		<0.05 ppm	
			2,3,4,6-Tetrachlorophenol	58-90-2	<0.05 ppm		<0.05 ppm	
			Pentachlorophenol	87-86-5	<0.01 ppm		<0.01 ppm	
F024	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.073	
			Lead	7439-92-1	NA		[Reserved]	
			Nickel	7440-02-0	NA		0.088	
F037	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
F038	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
F039 (and D001 and D002 wastes prohibited under 33-24-05-277).	NA	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Antimony	7440-36-0	NA		0.23	
			Arsenic	7440-38-2	NA		5.0	
			Barium	7440-39-3	NA		52	
			Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
			Mercury	7439-97-6	NA		0.025	
			Nickel	7440-02-0	NA		0.32	
			Selenium	7782-49-2	NA		5.7	
			Silver	7440-22-4	NA		0.072	
K001	NA	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	
K002	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K003	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K004	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K005	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K006 (anhydrous)	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
K006 (hydrated)	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		5.2	
K007	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K008	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K015	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.2	
K021	NA	Table CCW in 33-24-05-283	Antimony	7440-36-0	NA		0.23	
K022	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		5.2	
			Nickel	7440-02-0	NA		0.32	
K028	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.073	
			Lead	7439-92-1	NA		0.021	
			Nickel	7440-02-0	NA		0.088	
K031	NA	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
K046	NA	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.18	
K048	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K049	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K050	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K051	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	
			Nickel	7440-02-0	NA		0.20	
K052	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		1.7	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
			Nickel	7440-02-0	NA		0.20	
K061	NA	Table CCW in 33-24-05-283	Antimony	7440-36-0	NA		2.1	
			Arsenic	7440-38-2	NA		0.055	
			Barium	7440-39-3	NA		7.6	
			Beryllium	7440-41-7	NA		0.014	
			Cadmium	7440-43-9	NA		0.19	
			Chromium (Total)	7440-47-32	NA		0.33	
			Lead	7439-92-1	NA		0.37	
			Mercury	7439-97-6	NA		0.009	
			Nickel	7440-02-0	NA		5	
			Selenium	7782-49-2	NA		0.16	
			Silver	7440-22-4	NA		0.3	
			Thallium		NA		0.078	
			Zinc	7440-66-6	NA		5.3	
K062	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K069 (Calcium Sulfate Subcategory).	NA	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.14	
			Lead	7439-92-1	NA		0.24	
K071	NA	Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.025	
K083	NA	Table CCW in 33-24-05-283	Nickel	7440-02-2	NA		0.088	
K084	NA	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
K086	NA	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
			Lead	7439-92-1	NA		0.37	
K087	NA	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Note
K100	NA	Table CCW in 33-24-05-283	Cadmium	7440-43-9	NA		0.066	
			Chromium (Total)	7440-47-32	NA		5.2	
			Lead	7439-92-1	NA		0.51	
K101	NA	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
K102	NA	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
K106 (Low Mercury Subcategory-less than 260 mg/kg Mercury -residues from RMERC).	NA	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.020	
K106 (Low Mercury Subcategory-less than 260 mg/kg Mercury-that are not residues from RMERC).	NA	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.025	
K115	NA	Table CCW in 33-24-05-283	Nickel	7440-02-0	NA		0.32	
P010	Arsenic acid	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
P011	Arsenic pentoxide	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
P012	Arsenic trioxide	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
P013	Barium cyanide	Table CCW in 33-24-05-283	Barium	7440-39-3	NA		52	
P036	Dichlorophenylarsine	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
P038	Diethylarsine	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
P065 (Low Mercury Subcategory- Less than 260 mg/kg Mercury -residues from RMERC).	Mercury fulminate	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.20	
P065 (Low Mercury Subcategory- Less than 260 mg/kg Mercury- incinerator residues (and are not residues from RMERC)).	Mercury fulminate	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.025	
P073	Nickel carbonyl	Table CCW in 33-24-05-283	Nickel	7440-02-0	NA		0.32	
P074	Nickel cyanide	Table CCW in 33-24-05-283	Nickel	7440-02-0	NA		0.32	
P092 (Low Mercury Subcategory- Less than 260 mg/kg Mercury- residues from RMERC).	Phenyl mercury acetate	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.20	
P092 (Low Mercury Subcategory- Less than 260 mg/kg Mercury- incinerator residues (and are not residues from RMERC)).	Phenyl mercury acetate	Table 2 in 33-24-05-282 and Table CCW in 33-24-05-283	Mercury	7439-97-6	NA		0.025	

Table CCWE - Constituent Concentrations in Waste Extract

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS No. for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/l)	Notes
P099	Potassium silver cyanide	Table CCW in 33-24-05-283	Silver	7440-22-4	NA		0.072	
P103	Selenourea	Table CCW in 33-24-05-283	Selenium	7782-49-2	NA		5.7	
P104	Silver cyanide	Table CCW in 33-24-05-283	Silver	7440-22-4	NA		0.072	
P110	Tetraethyl lead	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	
P114	Thallium selenite	Table CCW in 33-24-05-283	Selenium	7782-49-2	NA		5.7	
U032	Calcium chromate	Table CCW in 33-24-05-283	Chromium (Total)	7440-47-32	NA		0.094	
U051	Creosote	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	
U136	Cacodylic acid	Table CCW in 33-24-05-283	Arsenic	7440-38-2	NA		5.6	(1)
U144	Lead acetate	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	
U145	Lead phosphate	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	
U146	Lead subacetate	Table CCW in 33-24-05-283	Lead	7439-92-1	NA		0.51	
U151 (Low Mercury Subcategory- Less than 260 mg/kg Mercury- residues from RMERC).	Mercury	Table CCW in 33-24-05-283 and Table 2 in 33-24-05-282	Mercury	7439-97-6	NA		0.20	
U151 (Low Mercury Subcategory- Less than 260 mg/kg Mercury- that are not residues from RMERC.	Mercury	Table CCW in 33-24-05-283 and Table 2 in 33-24-05-282	Mercury	7439-97-6	NA		0.025	
U204	Selenium dioxide	Table CCW in 33-24-05-283	Selenium	7782-49-2	NA		5.7	
U205	Selenium sulfide	Table CCW in 33-24-05-283	Selenium	7782-49-2	NA		5.7	

FOOTNOTE: [1]These treatment standards have been based on EP Leachate analysis but this does not preclude the use of TCLP analysis.

FOOTNOTE: [2]These waste codes are not subcategorized into wastewaters and nonwastewaters.

~~2. When wastes with differing treatment standards for a constituent of concern, are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern.~~

~~3. The treatment standards for the constituents in F001-F005 which are listed in table CCWE only apply to wastes which contain one, two, or all three of these constituents. If the waste contains any of these three constituents along with any of the other twenty six constituents found in F001-F005, then only the treatment standards in section 33-24-05-283 table CCW are required.~~

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-282. Treatment standards expressed as specified technologies.

Note: For the requirements previously found in this section in table 2 - Technology-Based Standards By Resource Conservation Recovery Act Waste Code, and table 3 - Technology-Based Standards for Specific Radioactive Hazardous Mixed Waste, refer to section 33-24-05-280.

1. The following wastes in subdivisions a and b of subsection 1 and in ~~table 2 and table 3~~ the table in section 33-24-05-280 "Treatment Standards for Hazardous Wastes", for which standards are expressed as a treatment method rather than a concentration level, must be treated using the technology or technologies specified in subdivisions a and b of subsection 1 and table 1.

   a. Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to fifty parts per million but less than five hundred parts per million must be incinerated in accordance with the technical requirements of 40 CFR 761.70 or burned in high efficiency boilers in accordance with the technical requirements of 40 CFR 761.60. Liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to five hundred parts per million must be incinerated in accordance with the technical requirements of 40 CFR 761.70. Thermal treatment under this section must also be in compliance with applicable regulations in chapter 33-24-05.

   b. Nonliquid hazardous wastes containing halogenated organic compounds (HOCs) in total concentration greater than or equal to one thousand milligrams per kilogram and liquid halogenated organic compounds containing wastes that are prohibited under subdivision a of subsection 5 of section 33-24-05-272 must be incinerated in accordance with the requirements of sections 33-24-05-144 through 33-24-05-159. These treatment standards do not apply where the waste is subject to sections 33-24-05-280 through 33-24-05-289, treatment standard for specific HOC (such as a hazardous waste chlorinated solvent for which a treatment standard is established under subsection 1 of section 33-24-05-281).

   c. A mixture consisting of wastewater, the discharge of which is subject to regulation under either section 402 or section 307(b) of the Clean Water Act, and de minimis losses of materials from manufacturing operations in

which these materials are used as raw materials or are produced as products in the manufacturing process, and that meet the criteria of the D001 ignitable liquids containing greater than ten percent total organic constituents (TOC) subcategory, is subject to the DEACT treatment standard described in table 1. For purposes of this subdivision, de minimis losses include those from normal material handling operations (for example, spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves, or other devices used to transfer materials); minor leaks from process equipment, storage tanks, or containers; leaks from well-maintained pump packings and seals; sample purgings; and relief device discharges.

Table 1. Technology Codes and Description of Technology-Based Standards

Technology Code	Description of Technology-Based Standards
ADGAS:	Venting of compressed gases into an absorbing or reacting media (for example, solid or liquid)-venting can be accomplished through physical release utilizing valves/piping; physical penetration of the container; and/or penetration through detonation.
AMLGM:	Amalgamation of liquid, elemental mercury contaminated with radioactive materials utilizing inorganic reagents such as copper, zinc, nickel, gold, and sulfur that result in a nonliquid, semi-solid amalgam and thereby reducing potential emissions of elemental mercury vapors to the air.
BIODG:	Biodegradation of organics or non-metallic inorganics (for example, degradable inorganics that contain the elements of phosphorus, nitrogen, and sulfur) in units operated under either aerobic or anaerobic conditions such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (for example, Total Organic Carbon can often be used as an indicator parameter for the biodegradation of many organic constituents that cannot be directly analyzed in wastewater residues).
CARBN:	Carbon adsorption (granulated or powdered) of non-metallic inorganics, organo-metallics, and/or organic constituents, operated such that a surrogate compound or indicator parameter has not undergone breakthrough (for example, Total Organic Carbon can often be used as an indicator parameter for the adsorption of many organic constituents that cannot be directly analyzed in wastewater residues). Breakthrough occurs when the carbon has become saturated with the constituent (or indicator parameter) and substantial change in adsorption rate associated with that constituent occurs.
CHOXD:	Chemical or electrolytic oxidation utilizing the following oxidation reagents (or waste reagents) or combinations of reagents: (1) Hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permangantes; and/or (9) other oxidizing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (for example, Total Organic Carbon can often be used as an indicator parameter for the oxidation of many organic constituents that cannot be directly analyzed in wastewater residues). Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.
CHRED:	Chemical reduction utilizing the following reducing reagents (or waste reagents) or combinations of reagents: (1) Sulfur dioxide; (2) sodium, potassium, or alkali salts or sulfites, bisulfites, metabisulfites, and polyethylene glycols (for example, NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (for example, Total Organic Halogens can often be used as an indicator parameter for the reduction of many halogenated organic constituents that cannot be directly analyzed in wastewater residues). Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.
CMBST	High temperature organic destruction technologies, such as combustion in incinerators, boilers, or industrial furnaces operated in accordance with the applicable requirements of sections 33-24-05-144 through 33-24-05-159, sections 33-24-05-525 through 33-24-05-549, or subsection 5 of section 33-24-06-16, and in other units operated in accordance with applicable technical operating requirements; and certain noncombustive technologies, such as the catalytic extraction process.
DEACT:	Deactivation to remove the hazardous characteristics of a waste due to is ignitability, corrosivity, and/or reactivity.
FSUBS:	Fuel substitution in units operated in accordance with applicable technical operating requirements.

Table 1. Technology Codes and Description of Technology-Based Standards

Technology Code	Description of Technology-Based Standards
HLVIT:	Vitrification of high level mixed radioactive wastes in units in compliance with all applicable radioactive protection requirements under control of the Nuclear Regulatory Commission.
IMERC:	Incineration of wastes containing organics and mercury in units operated in accordance with the technical operating requirements of sections 33-24-05-144 through 33-24-05-159. All wastewater and nonwastewater residues derived from this process must then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (for example, High or Low Mercury Subcategories).
INCIN:	Incineration in units operated in accordance with the technical operating requirements of sections 33-24-05-144 through 33-24-05-159.
LLEXT:	Liquid-liquid extraction (often referred to as solvent extraction) of organics from liquid wastes into an immiscible solvent for which the hazardous constituents have a greater solvent affinity, resulting in an extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery/reuse and a raffinate (extracted liquid waste) proportionately low in organics that must undergo further treatment as specified in the standard.
MACRO:	Macroencapsulation with surface coating materials such as polymeric organics (e.g. resins and plastics) or with a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to section 33-24-01-04.
NEUTR:	Neutralization with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals.
NLDBR:	No land disposal based on recycling.
PRECP:	Chemical precipitation of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, flourides, or phosphates. The following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (for example, containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (for example, sodium and/or potassium hydroxides; (3) soda ash (for example, sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculating, coagulation or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.
RBERY:	Thermal recovery of Beryllium.
RCGAS:	Recovery/reuse of compressed gases including techniques such as reprocessing of the gases for reuse/resale; filtering/adsorption of impurities; remixing for direct reuse or resale; and use of the gas as a fuel source.
RCORR:	Recovery of acids or bases utilizing one or more of the following recovery technologies: (1) Distillation (for example, thermal concentration); (2) ion exchange; (3) resin or solid adsorption; (4) reverse osmosis; and/or (5) incineration for the recovery of acid-Note: this does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.
RLEAD:	Thermal recovery of lead in secondary lead smelters.

Table 1. Technology Codes and Description of Technology-Based Standards

Technology Code	Description of Technology-Based Standards
RMERC:	Retorting or roasting in a thermal processing unit capable of volatilizing mercury and subsequently condensing the volatilized mercury for recovery. The retorting or roasting unit (or facility) must be subject to one or more of the following: (a) a National Emissions Standard for Hazardous Air Pollutants (NESHAP) for mercury; (b) a Best Available Control Technology (BACT) or a Lowest Achievable Emission Rate (LAER) standard for mercury imposed pursuant to a Prevention of Significant Deterioration (PSD) permit; or (c) a state permit that establishes emission limitations (within meaning of section 302 of the Clean Air Act) for mercury. All wastewater and nonwastewater residues derived from this process must then comply with the corresponding treatment standards per waste code with consideration of any applicable subcategories (for example, High or Low Mercury Subcategories).
RMETL:	Recovery of metals or inorganics utilizing one or more of the following direct physical/removal technologies: (1) Ion exchange; (2) resin or solid (for example, zeolites) adsorption; (3) reverse osmosis; (4) chelation/solvent extraction; (5) freeze crystallization; (6) ultrafiltration and/or (7) simple precipitation (for example, crystallization) - Note: This does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.
RORGS:	Recovery of organics utilizing one or more of the following technologies: (1) Distillation; (2) thin film evaporation; (3) steam stripping; (4) carbon adsorption; (5) critical fluid extraction; (6) liquid-liquid extraction; (7) precipitation/crystallization (including freeze crystallization); or (8) chemical phase separation techniques (for example, addition of acids, bases, demulsifiers, or similar chemicals); - Note: this does not preclude the use of other physical phase separation techniques such as a decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.
RTHRM:	Thermal recovery of metals or inorganics from nonwastewaters in units identified as industrial furnaces according to subdivisions a, f, g, k, and l of subsection 45 of section 33-24-01-04 under the definition of "industrial furnaces".
RZINC:	Resmelting in high temperature metal recovery units for the purpose of recovery of zinc.
STABL:	Stabilization with the following reagents (or waste reagents) or combinations of reagents: (1) Portland cement; or (2) lime/pozzolans (for example, fly ash and cement kiln dust) - this does not preclude the addition of reagents (for example, iron salts, silicates, and clays) designed to enhance the set/cure time and/or compressive strength, or to overall reduce the leachability of the metal or inorganic.
SSTRP:	Steam stripping of organics from liquid wastes utilizing direct application of steam to the wastes operated such that liquid and vapor flow rates, as well as, temperature and pressure ranges have been optimized, monitored, and maintained. These operating parameters are dependent upon the design parameters of the unit such as, the number of separation stages and the internal column design. Thus, resulting in a condensed extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery/reuse and an extracted wastewater that must undergo further treatment as specified in the standard.
WETOX:	Wet air oxidation performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (for example, Total Organic Carbon can often be used as an indicator parameter for the oxidation of many organic constituents that cannot be directly analyzed in wastewater residues).
WTRRX:	Controlled reaction with water for highly reactive inorganic or organic chemicals with precautionary controls for protection of workers from potential violent reactions as well as precautionary controls for potential emissions of toxic/ignitable levels of gases released during the reaction.

Note 1: When a combination of these technologies (for example, a treatment train) is specified as a single

treatment standard, the order of application is specified in section 33-24-05-282, table 2 by indicating the five letter technology code that must be applied first, then the designation "fb." (an abbreviation for "followed by"), then the five letter technology code for the technology that must be applied next, and so on.

Note 2: When more than one technology (or treatment train) are specified as alternative treatment standards, the five letter technology codes (or the treatment trains) are separated by a semicolon (;) with the last technology preceded by the word "OR". This indicates that any one of these BDAT technologies or treatment trains can be used for compliance with the standard.

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
D001	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	All descriptions based on 33-24-02-11, except for the 33-24-02 High TOC subcategory, managed in non-CWA/non-CWA-equivalent/non-Class 1 SDWA systems.	NA	DEACT, and meet F039; or FSUBS; RORGS; or INCIN	DEACT, and meet F039; or FSUBS; RORGS; or INCIN
D001	NA	All descriptions based on 33-24-02-11 except for the 33-24-02-11.1.a. High TOC subcategory; managed in CWA, CWA-equivalent, or Class 1 SDWA systems.	NA	DEACT	DEACT
D001	NA	All descriptions based on 33-24-02-11.1.a. High TOC ignitable liquids subcategory — greater than or equal to 10% total organic carbon.	NA	NA	FSUBS; RORGS; or INCIN
D002	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	Acid alkaline, and other subcategory based on 33-24-02-12 managed in non-CWA/non-CWA-equivalent/non-class 1 SDWA systems.	NA	DEACT and meet F039	DEACT and meet F039
D002	NA	Acid, alkaline, and other subcategory based on 33-24-02-12 managed in CWA, CWA-equivalent, or Class 1 SDWA systems.	NA	DEACT	DEACT
D003	NA	Reactive Sulfides based on 33-24-02-13.1.e.	NA	DEACT but not including dilution as a substitute for adequate treatment.	DEACT but not including dilution as a substitute for adequate treatment.
D003	NA	Explosives based on 33-24-02-13.1.f through h.	NA	DEACT	DEACT
D003	NA	Water reactives based on 33-24-02-13.1.b through d.	NA	NA	DEACT
D003	NA	Other reactives based on 33-24-02-13.1.a.	NA	DEACT	DEACT
D006	NA	Cadmium containing batteries.	7440-43-9	NA	RTHRM

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

~~Waste Code~~	~~See Also~~	~~Waste Descriptions and/or Treatment Subcategory~~	~~CAS No. for Regulated Hazardous Constituents~~	~~Technology code~~	
				~~Wastewaters~~	~~Nonwastewaters~~
~~D008~~	~~NA~~	~~Lead acid batteries (Note: This standard only applies to lead acid batteries that are identified as RCRA hazardous wastes and that are not excluded elsewhere from regulation under the land disposal restrictions of 33-24-05-250 through 33-24-05-290 or exempted under other regulations (see 33-24-05-235).~~	~~7439-92-1~~	~~NA~~	~~RLEAD~~
~~D009~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Mercury: (High Mercury Subcategory-greater than or equal to 260 mg/kg total Mercury-contains mercury and organics (and are not incinerator residues)).~~	~~7439-97-6~~	~~NA~~	~~IMERC; or RMERC~~
~~D009~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Mercury: (High Mercury Subcategory-greater than or equal to 260 mg/kg total Mercury-inorganics (including incinerator residues and residues from RMERC)).~~	~~7439-97-6~~	~~NA~~	~~RMERC~~
~~D012~~	~~Table CCW in 33-24-05-283~~	~~Endrin.~~	~~72-20-8~~	~~BIODG; or INCIN~~	~~NA~~
~~D013~~	~~Table CCW in 33-24-05-283~~	~~Lindane.~~	~~58-89-9~~	~~CARBN; or INCIN~~	~~NA~~
~~D014~~	~~Table CCW in 33-24-05-283~~	~~Methoxychlor.~~	~~72-43-5~~	~~WETOX; or INCIN~~	~~NA~~
~~D015~~	~~Table CCW in 33-24-05-283~~	~~Toxaphene.~~	~~8001-35-1~~	~~BIODG; or INCIN~~	~~NA~~
~~D016~~	~~Table CCW in 33-24-05-283~~	~~2,4-D.~~	~~94-75-7~~	~~CHOXD; BIODG; or INCIN~~	~~NA~~

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
D017	Table CCW in 33-24-05-283	2,4,5-TP.	93-72-1	CHOXD; or INCIN	NA
F005	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	2-Nitropropane.	79-46-9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
F005	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	2-Ethoxyethanol.	110-80-5	BIODG; or INCIN	INCIN
F024	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283		NA	INCIN	INCIN
K025	NA	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	NA	LLEXT fb SSTRP fb CARBN; or INCIN	INCIN
K026	NA	Stripping still tails from the production of methyl ethyl pyridines.	NA	INCIN	INCIN
K027	NA	Centrifuge and distillation residues from toluene diisocyanate production.	NA	CARBN; or INCIN	FSUBS; or INCIN
K039	NA	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.	NA	CARBN; or INCIN	FSUBS; or INCIN
K044	NA	Wastewater treatment sludges from the manufacturing and processing of explosives.	NA	DEACT	DEACT
K045	NA	Spent carbon from the treatment of wastewater containing explosives.	NA	DEACT	DEACT
K047	NA	Pink/red water from TNT operations.	NA	DEACT	DEACT

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
K069	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	Emission control dust/sludge from secondary lead smelting: Non-Calcium Sulfate Subcategory.	NA	NA	RLEAD
K106	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	Wastewater treatment sludge from the mercury cell process in chlorine production: (High Mercury Subcategory greater than or equal to 260 mg/kg total mercury).	NA	NA	RMERC
K107	NA	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	NA	INCIN; or CHOXD fb, CARBN; or BIODG fb CARBN	INCIN.
K108	NA	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	NA	INCIN; or CHOXD fb, CARBN; or BIODG fb CARBN	INCIN.
K109	NA	Spent filter cartridges from product purification from the production of 1,1-dimethyl-hydrazine (UDMH) from carboxylic acid hydrazides	NA	INCIN; or CHOXD fb, CARBN; or BIODG fb CARBN	INCIN.
K110	NA	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides	NA	INCIN; or CHOXD fb, CARBN; or BIODG fb CARBN	INCIN.
K112	NA	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene	NA	INCIN; or CHOXD fb, CARBN; or BIODG fb CARBN	INCIN.
K113	NA	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	CARBN; or INCIN	FSUBS; or INCIN

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

~~Waste Code~~	~~See Also~~	~~Waste Descriptions and/or Treatment Subcategory~~	~~CAS No. for Regulated Hazardous Constituents~~	~~Technology code~~	
				~~Wastewaters~~	~~Nonwastewaters~~
~~K114~~	~~NA~~	~~Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.~~	~~NA~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~K115~~	~~NA~~	~~Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotolueme.~~	~~NA~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~K116~~	~~NA~~	~~Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.~~	~~NA~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~K123~~	~~NA~~	~~Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebis-dithiocarbamic acid and its salts.~~	~~NA~~	~~INCIN; or CHOXD fb (BIODG or CARBN)~~	~~INCIN.~~
~~K124~~	~~NA~~	~~Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.~~	~~NA~~	~~INCIN; or CHOXD fb (BIODG or CARBN)~~	~~INCIN.~~
~~K125~~	~~NA~~	~~Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.~~	~~NA~~	~~INCIN; or CHOXD fb (BIODG or CARBN)~~	~~INCIN.~~
~~K126~~	~~NA~~	~~Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylene bisdithiocarbamic acid and its salts.~~	~~NA~~	~~INCIN; or CHOXD fb (BIODG or CARBN)~~	~~INCIN.~~
~~P001~~	~~NA~~	~~Warfarin (>0.3%).~~	~~81-81-2~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P002~~	~~NA~~	~~1-Acetyl-2-thiourea.~~	~~591-08-2~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P003~~	~~Table CCW in 33-24-05-283~~	~~Acrolein.~~	~~107-02-8~~	~~NA~~	~~FSUBS; or INCIN~~
~~P005~~	~~NA~~	~~Allyl alcohol.~~	~~107-18-6~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
P006	NA	Aluminum phosphide.	20859-73-8	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
P007	NA	5-Aminoethyl 3-isoxazolol.	2763-96-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P008	NA	4-Aminopyridine.	504-24-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P009	NA	Ammonium picrate.	131-74-8	CHOXD; CHRED, CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
P014	NA	Thiophenol (Benzene thiol).	108-98-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P015	NA	Beryllium dust powder.	7440-41-7	RMETL; or RTHRM	RMETL; or RTHRM
P016	NA	Bis(chloromethyl) ether.	542-88-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P017	NA	Bromoacetone.	598-31-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P018	NA	Brucine.	357-57-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P022	Table CCW in 33-24-05-283	Carbon disulfide.	75-15-0	NA	INCIN
P023	NA	Chloroacetaldehyde.	107-20-0	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P026	NA	1-(o-Chlorophenyl) thiourea.	5344-82-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P027	NA	3-Chloropropionitrile.	542-76-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P028	NA	Benzyl chloride.	100-44-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P031	NA	Cyanogen.	460-19-5	CHOXD; WETOX or INCIN	CHOXD; WETOX; or INCIN
P033	NA	Cyanogen chloride.	506-77-4	CHOXD; WETOX or INCIN	CHOXD; WETOX; or INCIN

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

~~Waste Code~~	~~See Also~~	~~Waste Descriptions and/or Treatment Subcategory~~	~~CAS No. for Regulated Hazardous Constituents~~	~~Technology code~~	
				~~Wastewaters~~	~~Nonwastewaters~~
~~P034~~	~~NA~~	~~2-Cyclohexyl-4,6-dinitrophenol.~~	~~131-89-5~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P040~~	~~NA~~	~~O,O-Diethyl-O-pyrazinyl phosphorothioate.~~	~~297-97-2~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P041~~	~~NA~~	~~Diethyl-p-nitrophenyl phosphate.~~	~~311-45-5~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P042~~	~~NA~~	~~Epinephrine.~~	~~51-43-4~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P043~~	~~NA~~	~~Diisopropyl fluorophosphate (DFP).~~	~~55-91-4~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P044~~	~~NA~~	~~Dimethoate.~~	~~60-51-5~~	~~CARBN; or INCIN~~	~~FSUBS or INCIN~~
~~P045~~	~~NA~~	~~Thiofanox.~~	~~39196-18-4~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P046~~	~~NA~~	~~alpha,alpha-Dimethyl-phenethylamine.~~	~~122-09-8~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P047~~	~~NA~~	~~4,6-Dinitro-o-cresol salts.~~	~~534-52-1~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P049~~	~~NA~~	~~2,4-Dithiobiuret.~~	~~541-53-7~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P054~~	~~NA~~	~~Aziridine.~~	~~151-56-4~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P056~~	~~Table CCW in 33-24-05-283~~	~~Fluorine.~~	~~7782-41-4~~	~~NA~~	~~ADAS fb NEUTR~~
~~P057~~	~~NA~~	~~Fluoroacetamide.~~	~~640-19-7~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P058~~	~~NA~~	~~Fluoroacetic acid, sodium salt.~~	~~62-74-8~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P062~~	~~NA~~	~~Hexaethyltetraphosphate.~~	~~757-58-4~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P064~~	~~NA~~	~~Isocyanic acid, ethyl ester.~~	~~624-83-9~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
P065	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	Mercury fulminate: (High Mercury Subcategory-greater than or equal to 260 mg/kg total Mercury-either incinerator residues or residues from RMERC).	628-86-4	NA	RMERC
P065	Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283	Mercury fulminate: (All Nonwastewasters that are not incinerator residues or are not residues from RMERC; regardless of Mercury Content).	628-86-4	NA	IMERC
P066	NA	Methomyl.	16752-77-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P067	NA	2-Methylaziridine.	75-55-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P068	NA	Methyl hydrazine.	60-34-4	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
P069	NA	Methyllactonitrile.	75-86-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P070	NA	Aldicarb.	116-06-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P072	NA	1-Naphthyl-2-thiourea.	86-88-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P075	NA	Nicotine and salts.	[1]54-11-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P076	NA	Nitric oxide.	10102-43-9	ADGAS	ADGAS
P078	NA	Nitrogen dioxide.	10102-44-0	ADGAS	ADGAS
P081	NA	Nitroglycerin.	55-63-0	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
P082	Table CCW in 33-24-05-283	N-Nitrosodimethylamine.	62-75-9	NA	INCIN

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

~~Waste Code~~	~~See Also~~	~~Waste Descriptions and/or Treatment Subcategory~~	~~CAS No. for Regulated Hazardous Constituents~~	~~Technology code~~	
				~~Wastewaters~~	~~Nonwastewaters~~
~~P084~~	~~NA~~	~~N-Nitrosomethylvinylamine.~~	~~4549-40-0~~	~~(WETOX or CHOXD) fb CARBN; OR INCIN~~	~~INCIN~~
~~P085~~	~~NA~~	~~Octamethylpyrophosphoramide.~~	~~152-16-9~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P087~~	~~NA~~	~~Osmium tetroxide.~~	~~20816-12-0~~	~~RMETL; or RTHRM~~	~~RMETL; or RTHRM~~
~~P088~~	~~NA~~	~~Endothall.~~	~~145-73-3~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P092~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Phenyl mercury acetate: (High Mercury Subcategory-greater than or equal to 260 mg/kg total Mercury-either incinerator residues or residues from RMERC).~~	~~62-38-4~~	~~NA~~	~~RMERC~~
~~P092~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Phenyl mercury acetate: (All nonwastewaters that are not incinerator residues and are not residues from RMERC; regardless of Mercury Content).~~	~~62-38-4~~	~~NA~~	~~IMERC; or RMERC~~
~~P093~~	~~NA~~	~~N-Phenylthiourea.~~	~~103-85-5~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P095~~	~~NA~~	~~Phosgene.~~	~~75-44-5~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P096~~	~~NA~~	~~Phosphine.~~	~~7803-51-2~~	~~CHOXD; CHRED; or INCIN~~	~~CHOXD; CHRED; or INCIN~~
~~P102~~	~~NA~~	~~Propargyl alcohol.~~	~~107-19-7~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P105~~	~~NA~~	~~Sodium azide.~~	~~26628-22-8~~	~~CHOXD; CHRED; CARBN; BIODG; or INCIN~~	~~FSUBS, CHOXD; CHRED; or INCIN~~
~~P108~~	~~NA~~	~~Strychnine and salts.~~	~~[1]57-24-9~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~P109~~	~~NA~~	~~Tetraethyldithiopyrophosphate.~~	~~3689-24-5~~	~~CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~P112~~	~~NA~~	~~Tetranitromethane.~~	~~509-14-8~~	~~CHOXD; CHRED; CARBN; BIODG; or INCIN~~	~~FSUBS, CHOXD; CHRED; or INCIN~~

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
P113	Table CCW in 33-24-05-283	Thallic oxide.	1314-32-5	NA	RTHRM; or STABL
P115	Table CCW in 33-24-05-283	Thallium (1) sulfate.	7446-18-6	NA	RTHRM; or STABL
P116	NA	Thiosemicarbazide.	79-19-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P118	NA	Trichloromethanethiol.	75-70-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P119	Table CCW in 33-24-05-283	Ammonium vanadate.	7803-55-6	NA	STABL
P120	Table CCW in 33-24-05-283	Vanadium pentoxide.	1314-62-1	NA	STABL
P122	NA	Zinc Phosphide (>10%).	1314-84-7	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
U001	NA	Acetaldehyde.	75-07-0	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U003	Table CCW in 33-24-05-283	Acetonitrile.	75-05-8	NA	INCIN
U006	NA	Acetyl Chloride.	75-36-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U007	NA	Acrylamide.	79-06-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U008	NA	Acrylic acid.	79-10-7	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U010	NA	Mitomycin C.	50-07-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U011	NA	Amitrole.	61-82-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U014	NA	Auramine.	492-80-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

~~Waste Code~~	~~See Also~~	~~Waste Descriptions and/or Treatment Subcategory~~	~~CAS No. for Regulated Hazardous Constituents~~	~~Technology code~~	
				~~Wastewaters~~	~~Nonwastewaters~~
~~U015~~	~~NA~~	~~Azaserine.~~	~~115-02-6~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U016~~	~~NA~~	~~Benz(c)acridine.~~	~~225-51-4~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~U017~~	~~NA~~	~~Benzal chloride.~~	~~98-87-3~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U020~~	~~NA~~	~~Benzenesulfonyl chloride.~~	~~98-09-9~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U021~~	~~NA~~	~~Benzidine.~~	~~92-87-5~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U023~~	~~NA~~	~~Benzotrichloride.~~	~~98-07-7~~	~~CHOXD; CHRED; CARBN; BIODG; or INCIN~~	~~FSUBS; CHOXD; CHRED; or INCIN~~
~~U026~~	~~NA~~	~~Chlornaphazin.~~	~~494-03-1~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U033~~	~~NA~~	~~Carbonyl fluoride.~~	~~353-50-4~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U034~~	~~NA~~	~~Trichloroacetaldehyde (Chloral).~~	~~75-87-6~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U035~~	~~NA~~	~~Chlorambucil.~~	~~305-03-3~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U038~~	~~Table CCW in 33-24-05-283~~	~~Chlorobenzilate.~~	~~510-15-6~~	~~NA~~	~~INCIN~~
~~U041~~	~~NA~~	~~1-Chloro-2,3-epoxypropane (Epichlorohydrin).~~	~~106-89-8~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U042~~	~~Table CCW in 33-24-05-283~~	~~2-Chloroethyl vinyl ether.~~	~~110-75-8~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U046~~	~~NA~~	~~Chloromethyl methyl ether.~~	~~107-30-2~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U049~~	~~NA~~	~~4-Chloro-o-toluidine hydrochloride.~~	~~3165-93-3~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
U053	NA	Crotonaldehyde.	4170-30-3	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U055	NA	Cumene.	98-82-8	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U056	NA	Cyclohexane.	110-82-7	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U057	Table CCW in 33-24-05-283	Cyclohexanone.	108-94-1	NA	FSUBS; or INCIN
U058	NA	Cyclophosphamide.	50-18-0	CARBN; or INCIN	FSUBS; or INCIN
U059	NA	Daunomycin.	20830-81-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U062	NA	Diallate.	2303-16-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U064	NA	1,2,7,8-Dibenzopyrene.	189-55-9	(WETOX or CHOXD) fb CARBN or INCIN	FSUBS; or INCIN
U073	NA	3,3'-Dichlorobenzidine.	91-94-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U074	NA	cis-1,4-Dichloro-2-butylene trans-1,4-Dichloro-2-butylene.	1476-11-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U085	NA	1,2:3,4-Diepoxybutane.	1464-53-5	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U086	NA	N,N-Diethylhydrazine.	1615--80-1	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U087	NA	O,O-Diethyl S-methyldithiophosphate.	3288-58-2	CARBN; or INCIN	FSUBS; or INCIN
U089	NA	Diethyl stilbestrol.	56-53-1	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U090	NA	Dihydrosafrole.	94-58-6	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U091	NA	3,3'-Dimethoxybenzidine.	119-90-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
U092	NA	Dimethylamine.	124-40-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U093	Table CCW in 33-24-05-283	p-Dimethylaminoazobenzene.	621-90-9	NA	INCIN
U094	NA	7,12-Dimethyl benz(a)anthracene.	57-97-6	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U095	NA	3,3'-Dimethylbenzidine.	119-93-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U096	NA	a,a-Dimethyl benzyl hydroperoxide.	80-15-9	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U097	NA	Dimethylcarbomyl chloride.	79-44-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U098	NA	1,1-Dimethylhydrazine.	57-14-7	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U099	NA	1,2-Dimethylhydrazine.	540-73-8	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U103	NA	Dimethyl sulfate.	77-78-1	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U109	NA	1,2-Diphenylhydrazine.	122-66-7	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U110	NA	Dipropylamine.	142-84-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U113	NA	Ethyl acrylate.	140-88-5	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U114	NA	Ethylene bis-dithiocarbamic acid.	111-54-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U115	NA	Ethylene oxide.	75-21-8	(WETOX or CHOXD) fb CARBN; or INCIN	CHOXD; or INCIN
U116	NA	Ethylene thiourea.	96-45-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
U119	NA	Ethyl methane sulfonate.	62-50-0	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U122	NA	Formaldehyde.	50-00-0	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U123	NA	Formic acid.	64-18-6	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U124	NA	Furan.	110-00-9	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U125	NA	Furfural.	98-01-1	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U126	NA	Glycidaldehyde.	765-34-4	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U132	NA	Hexachlorophenene.	70-30-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U133	NA	Hydrazine.	302-01-2	CHOXD; CHRED; CARBN; BIODG; or INCIN	FSUBS; CHOXD; CHRED; or INCIN
U134	Table CCW in 33-24-05-283	Hydrogen Flouride.	7664-39-3	NA	ADGAS fb NEUTR; or NEUTR
U135	NA	Hydrogen Sulfide.	7783-06-4	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
U143	NA	Lasiocarpine.	303-34-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U147	NA	Maleic anhydride.	108-31-6	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U148	NA	Maleic hydrazide.	123-33-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U149	NA	Malononitrile.	109-77-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U150	NA	Melphalan.	148-82-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

~~Waste Code~~	~~See Also~~	~~Waste Descriptions and/or Treatment Subcategory~~	~~CAS No. for Regulated Hazardous Constituents~~	~~Technology code~~	
				~~Wastewaters~~	~~Nonwastewaters~~
~~U151~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Mercury: (High Mercury Subcategory-greater than or equal to 260 mg/kg total Mercury).~~	~~7439-97-6~~	~~NA~~	~~RMERC~~
~~U153~~	~~NA~~	~~Methane thiol.~~	~~74-93-1~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U154~~	~~Table CCW in 33-24-05-283~~	~~Methanol.~~	~~67-56-1~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~U156~~	~~NA~~	~~Methyl chorocarbonate.~~	~~79-22-1~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U160~~	~~NA~~	~~Methyl ethyl ketone peroxide.~~	~~1338-23-4~~	~~CHOXD; CHRED; CARBN; BIODG; or INCIN~~	~~FSUBS; CHOXD; CHRED; or INCIN~~
~~U163~~	~~NA~~	~~N-Methyl N'-nitro N-Nitrosoguanidine.~~	~~70-25-7~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U164~~	~~NA~~	~~Methylthiouracil.~~	~~56-04-2~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U166~~	~~NA~~	~~1,4-Naphthoquinone.~~	~~130-15-4~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~FSUBS; or INCIN~~
~~U167~~	~~NA~~	~~1-Naphthylamine.~~	~~134-32-7~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U168~~	~~Table CCW in 33-24-05-283~~	~~2-Naphthlyamine.~~	~~91-59-8~~	~~NA~~	~~INCIN~~
~~U171~~	~~NA~~	~~2-Nitropropane.~~	~~79-46-9~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U173~~	~~NA~~	~~N-Nitroso-di-n-ethanolamine.~~	~~1116-54-7~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U176~~	~~NA~~	~~N-Nitroso-N-ethylurea.~~	~~759-73-9~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~
~~U177~~	~~NA~~	~~N-Nitroso-N-methylurea.~~	~~684-93-5~~	~~(WETOX or CHOXD) fb CARBN; or INCIN~~	~~INCIN~~

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
U178	NA	N-Nitroso-N-methylurethane.	615-53-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U182	NA	Paraldehyde.	123-63-7	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U184	NA	Pentachloroethane.	76-01-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U186	NA	1,3-Pentadiene.	504-60-9	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U189	NA	Phosphorus sulfide.	1314-80-3	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
U191	NA	2-Picoline.	109-06-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U193	NA	1,3-Propane sultone.	1120-71-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U194	NA	n-Propylamine.	107-10-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U197	NA	p-Benzoquinone.	106-51-4	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U200	NA	Reserpine.	50-55-5	(WETOX or CHOXD) fb CARBN or INCIN	INCIN
U201	NA	Resorcinol.	108-46-3	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U202	NA	Saccharin and salts.	[1]81-07-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U206	NA	Streptozotocin.	18883-66-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U213	NA	Tetrahydrofuran.	109-99-9	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN
U214	Table CCW in 33-24-05-283	Thallium (I) acetate.	563-68-8	NA	RTHRM; or STABL

Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
U215	Table CCW in 33-24-05-283	Thallium (I) carbonate.	6533-73-9	NA	RTHRM; or STABL
U216	Table CCW in 33-24-05-283	Thallium (I) chloride.	7791-12-0	NA	RTHRM; or STABL
U217	Table CCW in 33-24-05-283	Thallium (I) nitrate.	10102-45-1	NA	RTHRM; or STABL
U218	NA	Thioacetamide.	62-55-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U219	NA	Thiourea.	62-56-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U221	NA	Toluenediamine.	25376-45-8	CARBN; or INCIN	FSUBS; or INCIN
U222	NA	o-Toluidine hydrochloride.	636-21-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U223	NA	Toluene diisocyanate.	26471-62-5	CARBN; or INCIN	FSUBS; or INCIN
U234	NA	sym-Trinitrobenzene.	99-35-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U236	NA	Trypan Blue.	72-57-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U237	NA	Uracil mustard.	66-75-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U238	NA	Ethyl carbamate.	51-79-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U240	NA	2,4-Dichlorophenoxyacetic (salts and esters).	[1]94-75-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U244	NA	Thiram.	137-26-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U246	NA	Cyanogen bromide.	506-68-3	CHOXD; WETOX; or INCIN	CHOXD; WETOX; or INCIN
U248	NA	Warfarin (.3% or less).	81-81-2	(WETOX or CHOXD) fb CARBN; or INCIN	FSUBS; or INCIN

~~Table 2. Technology-Based Standards by the Resource Conservation and Recovery Act (RCRA) Waste Code~~

Waste Code	See Also	Waste Descriptions and/or Treatment Subcategory	CAS No. for Regulated Hazardous Constituents	Technology code	
				Wastewaters	Nonwastewaters
U249	NA	Zinc Phosphide (<10%).	1314-84-7	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
U328		o-toluidine	95-53-4	INCIN; or CHOXD fb, (BIODG or CARBN); or BIODG fb CARBN	INCIN; or Thermal Destruction.
U353		p-toluidine	106-49-0	INCIN; or CHOXD fb, (BIODG or CARBN); or BIODG fb CARBN	INCIN; or Thermal Destruction.
U359		2-ethoxy-ethanol	110-80-5	INCIN; or CHOXD fb, (BIODG or CARBN); or BIODG fb CARBN	INCIN; or FSUBS.

FOOTNOTE: [1]CAS Number given for parent compound only.

FOOTNOTE: [2]This waste code exists in gaseous form and is not categorized as wastewater or nonwastewater forms.

Note: NA means Not Applicable.

~~Table 3. Technology-Based Standards for Specific Radioactive Hazardous Mixed Waste~~

~~Waste Code~~	~~Waste Descriptions and/or Treatment Category~~	~~CAS No.~~	~~Technology Code~~	
			~~Wastewaters~~	~~Nonwastewaters~~
~~D002~~	~~Radioactive high level wastes generated during the reprocessing of fuel rods subcategory~~	~~NA~~	~~NA~~	~~HLVIT~~
~~D004~~	~~Radioactive high level wastes generated during the reprocessing of fuel rods subcategory~~	~~NA~~	~~NA~~	~~HLVIT~~
~~D005~~	~~Radioactive high level wastes generated during the reprocessing of fuel rods subcategory~~	~~NA~~	~~NA~~	~~HLVIT~~
~~D006~~	~~Radioactive high level wastes generated during the reprocessing of fuel rods subcategory~~	~~NA~~	~~NA~~	~~HLVIT~~
~~D007~~	~~Radioactive high level wastes generated during the reprocessing of fuel rods subcategory~~	~~NA~~	~~NA~~	~~HLVIT~~
~~D008~~	~~Radioactive lead solids subcategory (Note: these lead solids include, but are not limited to, all forms of lead shielding, and other elemental forms of lead. These lead solids do not include treatment residuals such as hydroxide sludges, other wastewater treatment residuals, or incinerator ashes that can undergo conventional pozzolanic stabilization, nor do they include organolead materials that can be incinerated and stabilized as ash).~~	~~7439-92-1~~	~~NA~~	~~MACRO~~
~~D008~~	~~Radioactive high level wastes generated during the reprocessing of fuel rods subcategory~~	~~NA~~	~~NA~~	~~HLVIT~~
~~D009~~	~~Elemental mercury contaminated with radioactive materials~~	~~7439-97-6~~	~~NA~~	~~AMLGM~~
~~D009~~	~~Hydraulic oil contaminated with mercury; radioactive materials subcategory~~	~~7439-97-6~~	~~NA~~	~~IMERC~~

Table 3. Technology-Based Standards for Specific Radioactive Hazardous Mixed Waste

Waste Code	Waste Descriptions and/or Treatment Category	CAS No.	Technology Code	
			Wastewaters	Nonwastewaters
D009	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT
D010	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT
D011	Radioactive high level wastes generated during the reprocessing of fuel rods subcategory	NA	NA	HLVIT
U151	Mercury: Elemental mercury contaminated with radioactive materials	7439-97-6	NA	AMLGM

Note: NA means Not Applicable.

2. Any person may submit an application to the administrator demonstrating that an alternative treatment method can achieve a measure of performance equivalent to that achieved by methods specified in subsections 1, 3, and 4 for wastes or specified in table 1 section 33-24-05-285 for hazardous debris. The applicant must submit information demonstrating that his treatment method is in compliance with federal, state, and local requirements and is protective of human health and the environment. On the basis of such information and any other available information, the administrator may approve the use of the alternative treatment method if he finds that the alternative treatment method provides a measure of performance equivalent to that achieved by methods specified in subsections 1, 3, and 4 for wastes or in table 1 of section 33-24-05-285 for hazardous debris. Any approval must be stated in writing and may contain such provisions and conditions as the administrator deems appropriate. The person to whom such approval is issued must comply with all limitations contained in such a determination.

3. As an alternative to the otherwise applicable sections 33-24-05-280 through 33-24-05-289 treatment standards, lab packs are eligible for land disposal provided the following requirements are met:

   a. The lab packs comply with the applicable provisions of section 33-24-05-185;

   b. ~~All hazardous wastes contained in such lab packs are specified~~ The lab pack does not contain any of the wastes listed in appendix VIII ~~or appendix IX;~~ of chapter 33-24-05;

   c. The lab packs are incinerated in accordance with the requirements of sections 33-24-05-144 through 33-24-05-159; and

   d. Any incinerator residues from lab packs containing D004, D005, D006, D007, D008, D010, and D011 are treated in compliance with the applicable treatment standards specified for such wastes in sections 33-24-05-280 through 33-24-05-289.

4. ~~Radioactive hazardous mixed wastes with treatment standards specified in table 3 are not subject to any treatment standards specified in section 33-24-05-281 or 33-24-05-283, or table 2. Radioactive hazardous mixed wastes not subject to treatment standards in table 3 remain subject to all applicable treatment standards specified in sections 33-24-05-281, 33-24-05-283, and table 2. Hazardous debris containing radioactive waste is not subject to the treatment standards specified in table 3 but is subject to the treatment standards specified in section 33-24-05-285.~~ Radioactive hazardous mixed wastes are subject to the treatment standards in section 33-24-05-280. Where treatment standards are specified for radioactive mixed wastes in the Table of Treatment Standards, those treatment standards will govern. Where there is no specific treatment standard for radioactive mixed waste, the treatment standard for the hazardous waste (as designated by environmental protection agency/state waste code) applies. Hazardous debris containing radioactive waste is subject to the treatment standards specified in section 33-24-05-285.

History: Effective December 1, 1988; December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-283. Treatment standards expressed as waste concentrations. For the requirements previously found in this section and for treatments standards in table CCW - Constituent Concentrations in Wastes, refer to section 33-24-05-280.

~~1. Table CCW identifies the restricted wastes and the concentrations of their associated hazardous constituents which may not be exceeded by the waste or treatment residual (not an extract of such waste or residual) for the allowable land disposal of such waste or residual. Compliance with these concentrations is required based upon grab samples, unless otherwise noted in the following table CCW.~~

~~Table CCW -- Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
~~D003 (Reactive Cyanides Sub-category based on 33-24-02-13.1.e).~~	~~NA~~	~~NA~~	~~Cyanides (Total)~~	~~57-12-5~~	~~(4)~~		~~590~~	~~(3)~~
			~~Cyanides (Amenable)~~	~~57-12-5~~	~~0.86~~		~~30~~	
~~D004~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Arsenic~~	~~7440-38-2~~	~~5.0~~		~~NA~~	
~~D005~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Barium~~	~~7440-39-3~~	~~100~~		~~NA~~	
~~D006~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Cadmium~~	~~7440-43-9~~	~~1.0~~		~~NA~~	
~~D007~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Chromium (Total)~~	~~7440-47-32~~	~~5.0~~		~~NA~~	
~~D008~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Lead~~	~~7439-92-1~~	~~5.0~~		~~NA~~	
~~D009~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Mercury~~	~~7439-97-6~~	~~0.20~~		~~NA~~	
~~D010~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Selenium~~	~~7782-49-2~~	~~1.0~~		~~NA~~	
~~D011~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Silver~~	~~7440-22-4~~	~~5.0~~		~~NA~~	
~~D012~~	~~NA~~	~~Table 2 in 33-24-05-282~~	~~Endrin~~	~~720-20-8~~	~~NA~~		~~0.13~~	~~([1])~~

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
D013	NA	Table 2 in 33-24-05-282	Lindane	58-89-9	NA		0.066	(1)
D014	NA	Table 2 in 33-24-05-282	Methoxychlor	72-43-5	NA		0.18	(1)
D015	NA	Table 2 in 33-24-05-282	Toxaphene	8001-35-1	NA		1.3	(1)
D016	NA	Table 2 in 33-24-05-282	2,4-D	94-75-7	NA		10.0	(1)
D017	NA	Table 2 in 33-24-05-282	2,4,5-TP (Silvex)	93-76-5	NA		7.9	(1)
F001-F005 spent solvents	NA		Acetone	67-64-1	0.28		160	
			Benzene	71-43-2	0.070		3.7	(1)
			n-Butyl alcohol	71-36-3	5.6		2.6	
			Carbon tetrachloride	56-23-5	0.057		5.6	
			Chlorobenzene	108-90-7	0.057		5.7	
			Cresol (m- and p-isomers)		0.77		3.2	
			o-cresol		0.11		5.6	
			o-Dichlorobenzene	95-50-1	0.088		6.2	
			Ethyl acetate	141-7-6	0.34		33	
			Ethyl benzene	100-41-4	0.057		6.0	
			Ethyl ether	60-29-7	0.12		160	
			Isobutyl alcohol	78-83-1	5.6		170	
			Methylene chloride	75-9-2	0.089		33	
			Methyl ethyl ketone	78-93-3	0.28		36	

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Methyl isobutyl ketone	108-10-1	0.14		33	
			Nitrobenzene	98-95-3	0.068		14	
			Pyridine	110-86-1	0.014		16	
			Tetrachloroethylene	127-18-4	0.056		5.6	
			Toluene	108-88-3	0.08		28	
			1,1,1-Trichloroethane	71-55-6	0.054		5.6	
			1,1,2-Trichloroethane	79-00-5	0.030		7.6	(1)
			Trichloroethylene	79-01-6	0.054		5.6	
			1,1,2-Trichloro-1,2,2-trifluoromethane	76-13-1	0.057		28	
			Trichloromono-fluoromethane	75-69-4	0.02		33	
			Xylenes (total)		0.32		28	
F006	NA	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.2		590	
			Cyanides (Amenable)	57-12-5	0.86		30	
			Cadmium	7440-43-9	1.6		NA	
			Chromium	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.040		NA	
			Nickel	7440-02-0	0.44		NA	
F007	NA	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.9		590	
			Cyanides (Amenable)	57-12-5	0.1		30	
			Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.04		NA	
			Nickel	7440-02-0	0.44		NA	

~~Table CCW -- Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
~~F008~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Cyanides (Total)~~	~~57-12-5~~	~~1.9~~		~~590~~	
			~~Cyanides (Amenable)~~	~~57-12-5~~	~~0.1~~		~~30~~	
			~~Chromium~~	~~7440-47-32~~	~~0.32~~		~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~0.04~~		~~NA~~	
			~~Nickel~~	~~7440-02-0~~	~~0.44~~		~~NA~~	
~~F009~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Cyanides (Total)~~	~~57-12-5~~	~~1.9~~		~~590~~	
			~~Cyanides (Amenable)~~	~~57-12-5~~	~~0.1~~		~~30~~	
			~~Chromium~~	~~7440-47-32~~	~~0.32~~		~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~0.04~~		~~NA~~	
			~~Nickel~~	~~7440-02-0~~	~~0.44~~		~~NA~~	
~~F010~~	~~NA~~	~~NA~~	~~Cyanides (Total)~~	~~57-12-5~~	~~1.9~~		~~1.5~~	
			~~Cyanides (Amenable)~~	~~57-12-5~~	~~0.1~~		~~NA~~	
~~F011~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Cyanides (Total)~~	~~57-12-5~~	~~1.9~~		~~110~~	
			~~Cyanides (Amenable)~~	~~57-12-5~~	~~0.1~~		~~9.1~~	
			~~Chromium (Total)~~	~~7440-47-32~~	~~0.32~~		~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~0.04~~		~~NA~~	
			~~Nickel~~	~~7440-02-0~~	~~0.44~~		~~NA~~	
~~F012~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Cyanides (Total)~~	~~57-12-5~~	~~1.9~~		~~110~~	
			~~Cyanides (Amenable)~~	~~57-12-5~~	~~0.1~~		~~9.1~~	
			~~Chromium (Total)~~	~~7440-47-32~~	~~0.32~~		~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~0.04~~		~~NA~~	

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Nickel	7440-02-0	0.44		NA	
F019	NA	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.2		590	(3)
			Cyanides (Amenable)	57-12-5	0.86		30	(3)
			Chromium (Total)	7440-47-32	0.32		NA	
F024	NA	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282 (Note: F024 organic standards must be treated via incineration (INCIN))	2-Chloro-1,3-butadiene	126-99-8	0.28	(1)	0.28	(1)
			3-Chloropropene	107-05-	0.28	(1)	0.28	(1)
			1,1-Dichloroethane	75-34-3	0.014	(1)	0.014	(1)
			1,2-Dichloroethane	107-06-2	0.014	(1)	0.014	(1)
			1,2-Dichloropropane	78-87-5	0.014	(1)	0.014	(1)
			cis-1,3-Dichloropropene	10061-01-5	0.014	(1)	0.014	(1)
			trans-1,3-Dichloropropene	10061-02-6	0.014	(1)	0.014	(1)
			Bis(2-ethylhexyl)phthalate	117-81-7	0.036	(1)	1.8	(1)
			Hexachloroethane	67-72-1	0.036	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.35		NA	
			Nickel	7440-02-0	0.47		NA	
F025 (Light Ends Subcategory).	NA	NA	Chloroform	67-66-3	0.046	(2)	6.2	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			1,2-Dichloroethane	107-06-2	0.21	(2)	6.2	(1)
			1,1-Dichloroethylene	75-35-4	0.025	(2)	6.2	(1)
			Methylene chloride	75-9-2	0.089	(2)	31	(1)
			Carbon tetrachloride	56-23-5	0.057	(2)	6.2	(1)
			1,1,2-Trichloroethane	79-00-5	0.054	(2)	6.2	(1)
			Trichloroethylene	79-01-6	0.054	(2)	5.6	(1)
			Vinyl chloride	75-01-4	0.27	(2)	33	(1)
F025 (Spent Filters or Aids and Desiccants Sub-category).	NA	NA	Chloroform	67-66-3	0.046	(2)	6.2	(1)
			Methylene chloride	75-9-2	0.089	(2)	31	(1)
			Carbon tetrachloride	56-23-5	0.057	(2)	6.2	(1)
			1,1,2-Trichloroethane	79-00-5	0.054	(2)	6.2	(1)
			Trichloroethylene	79-01-6	0.054	(2)	5.6	(1)
			Vinyl chloride	75-01-4	0.27	(2)	33	(1)
			Hexachlorobenzene	118-74-1	0.055	(2)	37	(1)
			Hexachlorobutadiene	87-68-3	0.055	(2)	28	(1)
			Hexachloroethane	67-72-1	0.055	(2)	30	(1)
F037	NA	Table CCWE in 33-24-05-281	Acenaphthene	208-96-8	0.059	(2)	NA	
			Anthracene	120-12-7	0.059	(2)	28	(1)
			Benzene	71-43-2	0.14	(2)	14	(1)
			Benzo(a)anthracene	50-32-8	0.059	(2)	20	(1)
			Benzo(a)pyrene	117-81-7	0.061	(2)	12	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Bis(2-ethylhexyl) phthalate	75-15-0	0.28	(2)	7.3	(1)
			Chrysene	218-01-9	0.059	(2)	15	(1)
			Di-n-butyl phthalate	105-67-9	0.057	(2)	3.6	(1)
			Ethylbenzene	100-41-4	0.057	(2)	14	(1)
			Fluorene	86-73-7	0.059	(2)	NA	
			Naphthalene	91-20-3	0.059	(2)	42	(1)
			Phenanthrene	85-01-8	0.059	(2)	34	(1)
			Phenol	108-95-2	0.039	(2)	3.6	(1)
			Pyrene	129-00-0	0.067	(2)	36	(1)
			Toluene	108-88-3	0.08	(2)	14	(1)
			Xylene(c)		0.32	(2)	22	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
F038	NA	Table CCWE in 33-24-05-281	Benzene	71-43-2	0.14	(2)	14	(1)
			Benzo(a)pyrene	50-32-8	0.061	(2)	12	(1)
			Bis(2-ethylhexyl) phthalate	117-81-7	0.28	(2)	7.3	(1)
			Chrysene	218-01-9	0.059	(2)	15	(1)
			Di-n-butyl phthalate	84-74-2	0.057	(2)	3.6	(1)
			Ethylbenzene	100-41-4	0.057	(2)	14	(1)
			Fluorene	86-73-7	0.059	(2)	NA	
			Naphthalene	91-20-3	0.059	(2)	42	(1)
			Phenanthrene	85-01-8	0.059	(2)	34	(1)
			Phenol	108-95-2	0.039	(2)	3.6	(1)

~~Table CCW - Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
			~~Pyrene~~	~~129-00-0~~	~~0.067~~	~~(2)~~	~~36~~	~~(1)~~
			~~Toluene~~	~~108-88-3~~	~~0.080~~	~~(2)~~	~~14~~	~~(1)~~
			~~Xylene(s)~~		~~0.32~~	~~(2)~~	~~22~~	~~(1)~~
			~~Cyanides (Total)~~	~~57-12-5~~	~~0.028~~	~~(1)~~	~~1.8~~	~~(1)~~
			~~Chromium (Total)~~	~~7440-47-32~~	~~0.2~~		~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~0.037~~		~~NA~~	
~~F039 (and D001 and D002 wastes prohibited under section 33-24-05-277).~~	~~NA~~	~~Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282~~	~~Acetone~~	~~67-64-1~~	~~0.28~~	~~(2)~~	~~160~~	~~(1)~~
			~~Acenaphthalene~~	~~208-96-8~~	~~0.059~~	~~(2)~~	~~3.4~~	~~(1)~~
			~~Acenaphthene~~	~~83-32-9~~	~~0.059~~	~~(2)~~	~~4.0~~	~~(1)~~
			~~Acetonitrile~~	~~75-05-8~~	~~0.17~~	~~(2)~~	~~NA~~	
			~~Acetophenone~~	~~96-86-2~~	~~0.010~~	~~(2)~~	~~9.7~~	
			~~2-Acetylaminofluorene~~	~~53-96-3~~	~~0.059~~	~~(2)~~	~~140~~	~~(1)~~
			~~Acrolein~~	~~107-02-8~~	~~0.29~~	~~(2)~~	~~NA~~	
			~~Acrylonitrile~~	~~107-13-1~~	~~0.24~~	~~(2)~~	~~84~~	~~(1)~~
			~~Aldrin~~	~~309-00-2~~	~~0.021~~	~~(2)~~	~~0.066~~	~~(1)~~
			~~4-Aminobiphenyl~~	~~92-67-1~~	~~0.13~~	~~(2)~~	~~NA~~	
			~~Aniline~~	~~62-53-3~~	~~0.81~~	~~(2)~~	~~14~~	~~(1)~~
			~~Anthracene~~	~~120-12-7~~	~~0.059~~	~~(2)~~	~~4.0~~	~~(1)~~
			~~Aramite~~	~~140-57-8~~	~~0.36~~	~~(2)~~	~~NA~~	
			~~Aroclor 1016~~	~~12674-11-2~~	~~0.013~~	~~(2)~~	~~0.92~~	~~(1)~~
			~~Aroclor 1221~~	~~11104-28-2~~	~~0.014~~	~~(2)~~	~~0.92~~	~~(1)~~
			~~Aroclor 1232~~	~~11141-16-5~~	~~0.013~~	~~(2)~~	~~0.92~~	~~(1)~~

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Aroclor 1242	53469-21-9	0.017	(2)	0.92	(1)
			Aroclor 1248	12672-29-6	0.013	(2)	0.92	(1)
			Aroclor 1254	11097-69-1	0.014	(2)	1.8	(1)
			Aroclor 1260	11096-82-5	0.014	(2)	1.8	(1)
			alpha-BHC	319-84-6	0.00014	(2)	0.066	(1)
			beta-BHC	319-85-7	0.00014	(2)	0.066	(1)
			delta-BHC	319-86-8	0.023	(2)	0.066	(1)
			gamma-BHC	58-89-9	0.0017	(2)	0.066	(1)
			Benzene	71-43-2	0.14	(2)	36	(1)
			Benz(a)anthracene	56-55-3	0.059	(2)	8.2	(1)
			Benzo(b)fluoranthene	205-99-2	0.055	(2)	3.4	(1)
			Benzo(k)fluoranthene	207-08-9	0.059	(2)	3.4	(1)
			Benzo(g,h,i)perylene	191-24-2	0.0055	(2)	1.5	(1)
			Benzo(a)pyrene	50-32-8	0.061	(2)	8.2	(1)
			Bromodichloromethane	75-27-4	0.35	(2)	15	(1)
			Bromoform (Tribromomethane)	75-25-2	0.63	(2)	15	(1)
			Bromomethane (methyl bromide)	74-83-9	0.11	(2)	15	(1)
			4-Bromophenyl phenyl ether	101-55-3	0.055	(2)	15	(1)
			n-Butyl alcohol	71-36-3	5.6	(2)	2.6	(1)
			Butyl benzyl phthalate	85-68-7	0.017	(2)	7.9	(1)
			2-sec-Butyl-4,6-dinitrophenol	88-85-7	0.066	(2)	2.5	(1)
			Carbon tetrachloride	56-23-5	0.057	(2)	5.6	(1)
			Carbon disulfide	75-15-0	0.014	(2)	NA	
			Chlordane	57-74-9	0.0033	(2)	0.13	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			p-Chloroaniline	106-47-8	0.46	(2)	16	(1)
			Chlorobenzene	108-90-7	0.057	(2)	5.7	(1)
			Chlorobenzilate	510-15-6	0.10	(2)	NA	
			2-Chloro-1,3-butadiene	126-99-8	0.057	(2)	NA	
			Chlorodibromomethane	124-48-1	0.057	(2)	15	(1)
			Chloroethane	75-00-3	0.27	(2)	6.0	(1)
			bis(2-Chloroethoxy) methane	111-91-1	0.036	(2)	7.2	(1)
			bis(2-Chloroethyl) ether	111-44-4	0.033	(2)	7.2	(1)
			Chloroform	67-66-3	0.046	(2)	5.6	(1)
			bis(2-Chloroisopropyl) ether	39638-32-9	0.055	(2)	7.2	(1)
			p-Chloro-m-cresol	59-50-7	0.018	(2)	14	(1)
			Chloromethane (Methyl chloride)	74-87-3	0.19	(2)	33	(1)
			2-Chloronaphthalene	91-8-7	0.055	(2)	5.6	(1)
			2-Chlorophenol	95-57-8	0.044	(2)	5.7	(1)
			3-Chloropropylene	107-05-1	0.036	(2)	28	(1)
			Chrysene	218-01-9	0.059	(2)	8.2	(1)
			o-Cresol	95-48-7	0.11	(2)	5.6	(1)
			Cresol (m- and p- isomers)		0.77	(2)	3.2	(1)
			Cyclohexanone	108-94-1	0.36	(2)	NA	
			1,2-Dibromo-3-chloropropane	96-12-8	0.11	(2)	15	(1)
			1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.028	(2)	15	(1)
			Dibromomethane	74-95-3	0.11	(2)	15	(1)
			2,4-Dichlorophenoxyacetic acid (2, 4-D)	94-75-7	0.72	(2)	10	(1)
			o,p'-DDD	53-19-0	0.023	(2)	0.087	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			p,p'-DDD	72-54-8	0.023	(2)	0.087	(1)
			o,p'-DDE	3424-82-6	0.031	(2)	0.087	(1)
			p,p'-DDE	72-55-9	0.031	(2)	0.087	(1)
			o,p'-DDT	789-02-6	0.0039	(2)	0.087	(1)
			p,p'-DDT	50-29-3	0.0039	(2)	0.087	(1)
			Dibenz(a,h)anthracene	53-70-3	0.055	(2)	8.2	(1)
			Dibenzo(a,e)pyrene	192-65-4	0.061	(2)	NA	
			m-Dichlorobenzene	541-73-1	0.036	(2)	6.2	(1)
			o-Dichlorobenzene	95-50-1	0.088	(2)	6.2	(1)
			p-Dichlorobenzene	106-46-7	0.090	(2)	6.2	(1)
			Dichlorodifluoromethane	75-71-8	0.23	(2)	7.2	(1)
			1,1-Dichloroethane	75-34-3	0.059	(2)	7.2	(1)
			1,2-Dichloroethane	107-06-2	0.21	(2)	7.2	(1)
			1,1-Dichloroethylene	75-35-4	0.025	(2)	33	(1)
			trans-1,2-Dichloroethylene		0.054	(2)	33	(1)
			2,4-Dichlorophenol	120-83-2	0.044	(2)	14	(1)
			2,6-Dichlorophenol	87-65-0	0.044	(2)	14	(1)
			1,2-Dichloropropane	78-87-5	0.85	(2)	18	(1)
			cis-1,3-Dichloropropene	10061-01-5	0.036	(2)	18	(1)
			trans-1,3-Dichloropropene	10061-02-6	0.036	(2)	18	(1)
			Dieldrin	60-57-1	0.017	(2)	0.13	(1)
			Diethyl phthalate	84-66-2	0.20	(2)	28	(1)
			2,4-Dimethyl phenol	105-67-9	0.036	(2)	14	(1)
			Dimethyl phthalate	131-11-3	0.047	(2)	28	(1)
			Di-n-butyl phthalate	84-74-2	0.057	(2)	28	(1)

~~Table CCW - Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
			~~1,4-Dinitrobenzene~~	~~100-25-4~~	~~0.32~~	~~(2)~~	~~2.3~~	~~(1)~~
			~~4,6-Dinitro-o-cresol~~	~~534-52-1~~	~~0.28~~	~~(2)~~	~~160~~	~~(1)~~
			~~2,4-Dinitrophenol~~	~~51-28-5~~	~~0.12~~	~~(2)~~	~~160~~	~~(1)~~
			~~2,4-Dinitrotoluene~~	~~121-14-2~~	~~0.32~~	~~(2)~~	~~140~~	~~(1)~~
			~~2,6-Dinitrotoluene~~	~~606-20-2~~	~~0.55~~	~~(2)~~	~~28~~	~~(1)~~
			~~Di-n-octyl phthalate~~	~~117-84-0~~	~~0.017~~	~~(2)~~	~~28~~	~~(1)~~
			~~Di-n-propylnitrosoamine~~	~~621-64-7~~	~~0.40~~	~~(2)~~	~~14~~	~~(1)~~
			~~Diphenylamine~~	~~122-39-4~~	~~0.52~~	~~(2)~~	~~NA~~	
			~~1,2-Diphenyl hydrazine~~	~~122-66-7~~	~~0.087~~	~~(2)~~	~~NA~~	
			~~Diphenyl nitrosamine~~	~~621-64-7~~	~~0.40~~	~~(2)~~	~~NA~~	
			~~1, 4-Dioxane~~	~~123-91-1~~	~~0.12~~	~~(2)~~	~~170~~	~~(1)~~
			~~Disulfoton~~	~~298-04-4~~	~~0.017~~	~~(2)~~	~~6.2~~	~~(1)~~
			~~Endosulfan I~~	~~939-98-8~~	~~0.023~~	~~(2)~~	~~0.066~~	~~(1)~~
			~~Endosulfan II~~	~~33213-6-5~~	~~0.029~~	~~(2)~~	~~0.13~~	~~(1)~~
			~~Endosulfan sulfate~~	~~1031-07-8~~	~~0.029~~	~~(2)~~	~~0.13~~	~~(1)~~
			~~Endrin~~	~~72-20-8~~	~~0.0028~~	~~(2)~~	~~0.13~~	~~(1)~~
			~~Endrin aldehyde~~	~~7421-93-4~~	~~0.025~~	~~(2)~~	~~0.13~~	~~(1)~~
			~~Ethyl acetate~~	~~141-78-6~~	~~0.34~~	~~(2)~~	~~33~~	~~(1)~~
			~~Ethyl cyanide~~	~~107-12-0~~	~~0.24~~	~~(2)~~	~~360~~	~~(1)~~
			~~Ethyl benzene~~	~~100-41-4~~	~~0.057~~	~~(2)~~	~~6.0~~	~~(1)~~
			~~Ethyl ether~~	~~60-29-7~~	~~0.12~~	~~(2)~~	~~160~~	~~(1)~~
			~~bis(2-Ethylhexyl) phthalate~~	~~117-81-7~~	~~0.28~~	~~(2)~~	~~28~~	~~(1)~~
			~~Ethyl methacrylate~~	~~97-63-2~~	~~0.14~~	~~(2)~~	~~160~~	~~(1)~~
			~~Ethylene oxide~~	~~75-21-8~~	~~0.12~~	~~(2)~~	~~NA~~	
			~~Famphur~~	~~52-85-7~~	~~0.017~~	~~(2)~~	~~15~~	~~(1)~~

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Fluoranthene	206-44-0	0.068	(2)	8.2	(1)
			Fluorene	86-73-7	0.059	(2)	4.0	(1)
			Fluorotrichloromethane	75-69-4	0.020	(2)	33	(1)
			Heptachlor	76-44-8	0.0012	(2)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(2)	0.066	(1)
			Hexachlorobenzene	118-74-1	0.055	(2)	37	(1)
			Hexachlorobutadiene	87-68-3	0.055	(2)	28	(1)
			Hexachlorocyclopentadiene	77-47-4	0.057	(2)	3.6	(1)
			Hexachlorodibenzo-furans		0.000063	(2)	0.001	(1)
			Hexachlorodibenzo-p-dioxins		0.000063	(2)	0.001	(1)
			Hexachloroethane	67-72-1	0.055	(2)	28	(1)
			Hexachloropropene	1888-71-7	0.035	(2)	28	(1)
			Indeno(1,2,3-c,d) pyrene	193-39-5	0.0055	(2)	8.2	(1)
			Iodomethane	74-88-4	0.19	(2)	65	(1)
			Isobutanol	78-83-1	5.6	(2)	170	(1)
			Isodrin	465-73-6	0.021	(2)	0.066	(1)
			Isosafrole	120-58-1	0.081	(2)	2.6	(1)
			Kepone	143-50-8	0.0011	(2)	0.13	(1)
			Methacrylonitrile	126-98-7	0.24	(2)	84	(1)
			Methanol	67-56-1	5.6	(2)	NA	
			Methapyrilene	91-80-5	0.081	(2)	1.5	(1)
			Methoxychlor	72-43-5	0.25	(2)	0.18	(1)
			3-Methylcholanthrene	56-49-5	0.0055	(2)	15	(1)
			4,4-Methylene-bis-(2-chloroaniline)	101-14-4	0.50	(2)	35	(1)
			Methylene chloride	75-09-2	0.089	(2)	33	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Methyl ethyl ketone	78-93-3	0.28	(2)	36	(1)
			Methyl isobutyl ketone	108-10-1	0.14	(2)	33	(1)
			Methyl methacrylate	80-62-6	0.14	(2)	160	(1)
			Methyl methansulfonate	66-27-3	0.018	(2)	NA	
			Methyl parathion	298-00-0	0.014	(2)	4.6	(1)
			Naphthalene	91-20-3	0.059	(2)	3.1	(1)
			2-Naphthylamine	91-59-8	0.52	(2)	NA	
			p-Nitroaniline	100-01-6	0.028	(2)	28	(1)
			Nitrobenzene	98-95-3	0.068	(2)	14	(1)
			5-Nitro-o-toluidine	99-55-8	0.32	(2)	28	(1)
			4-Nitrophenol	100-02-7	0.12	(2)	29	(1)
			N-Nitrosodiethylamine	55-18-5	0.40	(2)	28	(1)
			N-Nitrosodimethylamine	62-75-9	0.40	(2)	NA	
			N-Nitroso-di-n-butylamine	924-16-3	0.40	(2)	17	(1)
			N-Nitrosomethylethylamine	10595-95-6	0.40	(2)	2.3	(1)
			N-Nitrosomorpholine	59-89-2	0.40	(2)	2.3	(1)
			N-Nitrosopiperidine	100-75-4	0.013	(2)	35	(1)
			N-Nitrosopyrrolidine	930-55-2	0.013	(2)	35	(1)
			Parathion	56-38-2	0.014	(2)	4.6	(1)
			Pentachlorobenzene	608-93-5	0.055	(2)	37	(1)
			Pentachlorodibenzo-furans		0.000063	(2)	0.001	(1)
			Pentachlorodibenzo-p-dioxins		0.000063	(2)	0.001	(1)
			Pentachloronitrobenzene	82-68-8	0.055	(2)	4.8	(1)
			Pentachlorophenol	87-86-5	0.089	(2)	7.4	(1)
			Phenacetin	62-44-2	0.081	(2)	16	(1)

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Phenanthrene	85-01-8	0.059	(2)	3.1	(1)
			Phenol	108-95-2	0.039	(2)	6.2	(1)
			Phorate	298-02-2	0.021	(2)	4.6	(1)
			Phthalic anhydride	85-44-9	0.069	(2)	NA	
			Pronamide	23950-58-5	0.093	(2)	1.5	(1)
			Pyrene	129-00-0	0.067	(2)	8.2	(1)
			Pyridine	110-86-1	0.014	(2)	16	(1)
			Safrole	94-59-7	0.081	(2)	22	(1)
			Silvex (2,4,5-TP)	93-72-1	0.72	(2)	7.9	(1)
			2,4,5-T	93-76-5	0.72	(2)	7.9	(1)
			1,2,4,5,-Tetrachlorobenzene	95-94-3	0.055	(2)	19	(1)
			Tetrachlorodibenzo-furans		0.000063	(2)	0.001	(1)
			Tetrachlorodibenzo-p-dioxins		0.000063	(2)	0.001	(1)
			1,1,1,2-Tetrachloroethane	630-20-6	0.057	(2)	42	(1)
			1,1,2,2-Tetrachloroethane	79-34-6	0.057	(2)	42	(1)
			Tetrachloroethylene	127-18-4	0.056	(2)	5.6	(1)
			2,3,4,6-Tetrachlorophenol	58-90-2	0.030	(2)	37	(1)
			Toluene	108-88-3	0.080	(2)	28	(1)
			Toxaphene	8001-35-1	0.0095	(2)	1.3	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055	(2)	19	(1)
			1,1,1-Trichloroethane	71-55-6	0.054	(2)	5.6	(1)
			1,1,2-Trichloroethane	79-00-5	0.054	(2)	5.6	(1)
			Trichloroethylene	79-01-6	0.054	(2)	5.6	(1)
			2,4,5-Trichlorophenol	95-95-4	0.18	(2)	37	(1)
			2,4,6-Trichlorophenol	88-06-2	0.035	(2)	37	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			1,2,3-Trichloropropane	96-18-4	0.85	(2)	28	(1)
			1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.057	(2)	28	(1)
			Tris(2,3-dibromopropyl) phosphate	126-72-7	0.11	(2)	NA	
			Vinyl chloride	75-01-4	0.27	(2)	33	(1)
			Xylene(s)		0.32	(2)	28	(1)
			Cyanides (Total)	57-12-5	1.2	(2)	1.8	(1)
			Fluoride	16964-48-8	35	(2)	NA	
			Sulfide	8496-25-8	14	(2)	NA	
			Antimony	7440-36-0	1.9	(2)	NA	
			Arsenic	7440-38-2	1.4	(2)	NA	
			Barium	7440-39-3	1.2	(2)	NA	
			Beryllium	7440-41-7	0.82	(2)	NA	
			Cadmium	7440-43-9	0.20	(2)	NA	
			Chromium (Total)	7440-47-32	0.37	(2)	NA	
			Copper	7440-50-8	1.3	(2)	NA	
			Lead	7439-92-1	0.28	(2)	NA	
			Mercury	7439-97-6	0.15	(2)	NA	
			Nickel	7440-02-0	0.55	(2)	NA	
			Selenium	7782-49-2	0.82	(2)	NA	
			Silver	7440-22-4	0.29	(2)	NA	
			Thallium	7440-28-0	1.4	(2)	NA	
			Vanadium	7440-62-2	0.042	(2)	NA	
			Zinc	7440-66-6	1.0	(2)	NA	

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K001	NA	Table CCWE in 33-24-05-281	Naphthalene	91-20-3	0.031	(1)	1.5	(1)
			Pentachlorophenol	87-86-5	0.18	(1)	7.4	(1)
			Phenanthrene	85-01-8	0.031	(1)	1.5	(1)
			Pyrene	129-00-0	0.028	(1)	1.5	(1)
			Toluene	108-88-3	0.028	(1)	28	(1)
			Xylenes (Total)		0.032	(1)	33	(1)
			Lead	7439-92-1	0.037		NA	
K002	NA	Table CCWE in 33-24-05-281	Chromium (Total)	7440-47-32	0.9	(2)	NA	
			Lead	7439-92-1	3.4	(2)	NA	
K003	NA	Table CCWE in 33-24-05-281	Chromium (Total)	7440-47-32	0.9	(2)	NA	
			Lead	7439-92-1	3.4	(2)	NA	
K004	NA	Table CCWE in 33-24-05-281	Chromium (Total)	7440-47-32	0.9	(2)	NA	a
			Lead	7439-92-1	3.4	(2)	NA	
K005	NA	Table CCWE in 33-24-05-281	Chromium (Total)	7440-47-32	0.9	(2)	NA	
			Lead	7439-92-1	3.4	(2)	NA	
			Cyanides (Total)	57-12-5	0.74	(2)	(4)	
K006	NA	Table CCWE in 33-24-05-281	Chromium (Total)	7440-47-32	0.9	3.4	(2)	NA
			Lead	7439-92-1			(2)	NA

~~Table CCW -- Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
~~K007~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Chromium (Total)~~	~~7440-47-32~~	~~0.9~~	~~(2)~~	~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~3.4~~	~~(2)~~	~~NA~~	
			~~Cyanides (Total)~~	~~57-12-5~~	~~0.74~~	~~(2)~~	~~(4)~~	
~~K008~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Chromium (Total)~~	~~7440-47-32~~	~~0.9~~	~~(2)~~	~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~3.4~~	~~(2)~~	~~NA~~	
~~K009~~	~~NA~~	~~NA~~	~~Chloroform~~	~~67-66-3~~	~~0.1~~		~~6.0~~	~~(1)~~
~~K010~~	~~NA~~	~~NA~~	~~Chloroform~~	~~67-66-3~~	~~0.1~~		~~6.0~~	~~(1)~~
~~K011~~	~~NA~~	~~NA~~	~~Acetonitrile~~	~~75-05-8~~	~~38~~		~~1.8~~	~~(1)~~
			~~Acrylonitrile~~	~~107-13-1~~	~~0.06~~		~~1.4~~	~~(1)~~
			~~Acrylamide~~	~~79-06-1~~	~~19~~		~~23~~	~~(1)~~
			~~Benzene~~	~~71-43-2~~	~~0.02~~		~~0.03~~	~~(1)~~
			~~Cyanide (Total)~~	~~57-12-5~~	~~21~~		~~57~~	
~~K013~~	~~NA~~	~~NA~~	~~Acetonitrile~~	~~75-05-8~~	~~38~~		~~1.8~~	~~(1)~~
			~~Acrylonitrile~~	~~107-13-1~~	~~0.06~~		~~1.4~~	~~(1)~~
			~~Acrylamide~~	~~79-06-1~~	~~19~~		~~23~~	~~(1)~~
			~~Benzene~~	~~71-43-2~~	~~0.02~~		~~0.03~~	~~(1)~~
			~~Cyanide (Total)~~	~~57-12-5~~	~~21~~		~~57~~	
~~K014~~	~~NA~~	~~NA~~	~~Acetonitrile~~	~~75-05-8~~	~~38~~		~~1.8~~	~~(1)~~
			~~Acrylonitrile~~	~~107-13-1~~	~~0.06~~		~~1.4~~	~~(1)~~
			~~Acrylamide~~	~~79-06-1~~	~~19~~		~~23~~	~~(1)~~
			~~Benzene~~	~~71-43-2~~	~~0.02~~		~~0.03~~	~~(1)~~
			~~Cyanide (Total)~~	~~57-12-5~~	~~21~~		~~57~~	

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K015	NA	Table CCWE in 33-24-05-281	Anthracene	120-12-7	0.059		3.4	(1)
			Benzal Chloride	98-87-3	0.28		6.2	(1)
			Sum of Benzo(b) fluoranthene and Benzo(k) fluoranthene	207-08-9	0.055		3.4	
			Phenanthrene	85-01-8	0.059		3.4	(1)
			Toluene	108-88-3	0.08		6.0	(1)
			Chromium (Total)	7440-47-32	0.32		NA	
			Nickel	7440-02-0	0.44		NA	
K016	NA		Hexachlorobenzene	118-74-1	0.055		28	(1)
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Hexachlorocyclopentadiene	77-47-4	0.057		5.6	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
K017	NA	NA	1,2-Dichloropropane	78-87-5	0.85	(1,2)	18	(1)
			1,2,3-Trichloropropane	96-18-4	0.85	(1,2)	28	(1)
			Bis(2-chloroethyl)ether	111-44-4	0.033	(1,2)	7.2	(1)
K018	NA		Chloroethane	76-00-3	0.27		6.0	(1)
			Chloromethane	74-87-3	0.19		NA	
			1,1-Dichloroethane	75-34-3	0.059		6.0	(1)
			1,2-Dichloroethane	107-06-2	0.21		6.0	(1)
			Hexachlorobenzene	118-74-1	0.055		28	(1)
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Pentachloroethane	76-01-7	NA		5.6	
			1,1,1-Trichloroethane	71-55-6	0.054		6.0	
			Hexachloroethane	67-72-1	0.055		28	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K019	NA		Bis(2-chloroethyl) ether	111-44-4	0.033		5.6	(1)
			Chlorobenzene	108-90-7	0.057		6.0	(1)
			Chloroform	67-66-3	0.046		6.0	(1)
			p-Dichlorobenzene	106-46-7	0.09		NA	
			1,2-Dichloroethane	107-06-2	0.21		6.0	(1)
			Fluorene	86-73-7	0.059		NA	
			Hexachloroethane	67-72-1	0.055		28	(1)
			Naphthalene	91-20-3	0.059		5.6	(1)
			Phenanthrene	85-01-8	0.059		5.6	(1)
			1,2,4,5- Tetrachlorobenzene	95-94-3	0.055		NA	
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055		19	(1)
			1,1,1-Trichloroethane	71-55-6	0.054		6.0	(1)
K020	NA	NA	1,2-Dichloroethane	106-93-4	0.21		6.0	(1)
			1,1,2,2-Tetrachloroethane	79-34-6	0.057		5.6	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
K021	NA	Table CCWE in 33-24-05-281	Chloroform	67-66-3	0.046	(2)	6.2	(1)
			Carbon tetrachloride	56-23-5	0.057	(2)	6.2	(1)
			Antimony	7440-36-0	0.60	(2)	NA	(1)
K022	NA	Table CCWE in 33-24-05-281	Toluene	108-88-3	0.080	(2)	0.034	(1)
			Acetophenone	96-86-2	0.010		19	(1)
			Diphenylamine	22-39-4	0.52	(2)	NA	
			Diphenylnitrosamine	86-30-6	0.40	(2)	NA	

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Sum of Diphenylamine and Diphenylnitrosamine		NA		13	(1)
			Phenol	108-95-2	0.039		12	(1)
			Chromium (Total)	7440-47-32	0.35		NA	
			Nickel	7440-02-0	0.47		NA	
K023	NA		Phthalic anhydride (measured as Phthalic acid)	85-44-9	0.069		28	(1)
K024	NA		Phthalic anhydride (measured as Phthalic acid)	85-44-9	0.069		28	(1)
K028	NA	Table CCWE in 33-24-05-281	1,1-Dichloroethane trans-1,2-	75-34-3	0.059		6.0	(1)
			Dichloroethane		0.054		6.0	(1)
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
			Pentachloroethane	76-01-7	NA		5.6	(1)
			1,1,1,2-Tetrachloroethane	630-20-6	0.057		5.6	(1)
			1,1,2,2-Tetrachloroethane	79-34-6	0.057		5.6	(1)
			1,1,1,-Trichloroethane	71-55-6	0.054		6.0	(1)
			1,1,2-Trichloroethane	79-00-5	0.054		6.0	(1)
			Tetrachloroethylene	127-18-4	0.056		6.0	(1)
			Cadmium	7440-43-9	6.4		NA	
			Chromium (Total)	7440-47-32	0.35		NA	
			Lead	7439-92-1	0.037		NA	
			Nickel	7440-02-0	0.47		NA	
K029	NA	NA	Chloroform	67-66-3	0.046		6.0	(1)
			1,2-Dichloroethane	107-06-2	0.21		6.0	(1)
			1,1-Dichloroethylene	75-35-4	0.025		6.0	(1)

~~Table CCW -- Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
			~~1,1,1-Trichloroethane~~	~~71-55-6~~	~~0.054~~		~~6.0~~	~~(1)~~
			~~Vinyl chloride~~	~~75-01-4~~	~~0.27~~		~~6.0~~	~~(1)~~
~~K030~~	~~NA~~		~~o-Dichlorobenzene~~	~~95-50-1~~	~~0.088~~		~~NA~~	
			~~p-Dichlorobenzene~~	~~106-46-7~~	~~0.09~~		~~NA~~	
			~~Hexachlorobutadiene~~	~~87-68-3~~	~~0.055~~		~~5.6~~	~~(1)~~
			~~Hexachloroethane~~	~~67-72-1~~	~~0.055~~		~~28~~	~~(1)~~
			~~Hexachloropropene~~	~~1888-71-7~~	~~NA~~		~~19~~	~~(1)~~
			~~Pentachlorobenzene~~	~~608-93-5~~	~~NA~~		~~28~~	~~(1)~~
			~~Pentachloroethane~~	~~76-01-7~~	~~NA~~		~~5.6~~	~~(1)~~
			~~1,2,4,5-Tetrachlorobenzene~~	~~95-94-3~~	~~0.055~~		~~14~~	~~(1)~~
			~~Tetrachloroethene~~	~~127-18-4~~	~~0.056~~		~~6.0~~	~~(1)~~
			~~1,2,4-Trichlorobenzene~~	~~120-82-1~~	~~0.055~~		~~19~~	~~(1)~~
			~~2,4-Dichlorophenol~~	~~120-83-2~~	~~0.044~~		~~0.38~~	~~(1)~~
			~~2,6-Dichlorophenol~~	~~187-65-0~~	~~0.044~~		~~0.34~~	~~(1)~~
			~~2,4,5-Trichlorophenol~~	~~95-95-4~~	~~0.18~~		~~8.2~~	~~(1)~~
			~~2,4,6-Trichlorophenol~~	~~88-06-2~~	~~0.035~~		~~7.6~~	~~(1)~~
			~~Tetrachlorophenols (Total)~~		~~NA~~		~~0.68~~	~~(1)~~
			~~Pentachlorophenol~~	~~87-86-5~~	~~0.089~~		~~1.9~~	~~(1)~~
			~~Tetrachloroethene~~	~~79-01-6~~	~~0.056~~		~~1.7~~	~~(1)~~
			~~Hexachlorodibenzo-p-dioxins~~		~~0.000063~~		~~0.001~~	~~(1)~~
			~~Hexachlorodibenzofurans~~		~~0.000063~~		~~0.001~~	~~(1)~~
			~~Pentachlorodibenzo-p-dioxins~~		~~0.000063~~		~~0.001~~	~~(1)~~
			~~Pentachlorodibenzo-furans~~		~~0.000063~~		~~0.001~~	~~(1)~~
			~~Tetrachlorodibenzo-p-dioxins~~		~~0.000063~~		~~0.001~~	~~(1)~~
			~~Tetrachlorodibenzofurans~~		~~0.000063~~		~~0.001~~	~~(1)~~

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K031	NA	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	(1)
K032	NA	NA	Hexachloropentadiene	77-47-4	0.057	(2)	2.4	(1)
			Chlordane	57-74-9	0.0033	(2)	0.26	(1)
			Heptachlor	76-44-8	0.0012	(2)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(2)	0.066	(1)
K033	NA	NA	Hexachlorocyclopentadiene	77-47-4	0.057	(2)	2.4	(1)
K034	NA	NA	Hexachlorocyclopentadiene	77-47-4	0.057	(2)	2.4	(1)
K035	NA	NA	Acenaphthene	83-32-9	NA		3.4	(1)
			Anthracene	120-12-7	NA		3.4	(1)
			Benz(a)anthracene	56-55-3	0.059	(2)	3.4	(1)
			Benzo(a)pyrene	50-32-8	NA		3.4	(1)
			Chrysene	218-01-9	0.059	(2)	3.4	(1)
			Dibenz(a,h)anthracene	53-70-3	NA		3.4	(1)
			Fluoranthene	206-44-0	0.068	(2)	3.4	(1)
			Fluorene	86-73-7	NA		3.4	(1)
			Indeno(1,2,3-cd)pyrene	193-39-5	NA		3.4	(1)
			Cresols (m- and p- isomers)		0.77	(2)	NA	
			Naphthalene	91-20-3	0.059	(2)	3.4	(1)
			o-cresol	95-48-7	0.11	(2)	NA	
			Phenanthrene	85-01-8	0.059	(2)	3.4	(1)
			Phenol	108-95-2	0.039		NA	
			Pyrene	129-00-0	0.067	(2)	8.2	(1)
K036	NA	NA	Disulfoton	298-04-4	0.025	(2)	0.1	(1)
K037	NA	NA	Disulfoton	298-04-4	0.025	(2)	0.1	(1)

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Toluene	108-88-3	0.080	(2)	28	(1)
K038	NA	NA	Phorate	298-02-2	0.025	(2)	0.1	(1)
K040	NA	NA	Phorate	298-02-2	0.025	(2)	0.1	(1)
K041	NA	NA	Toxaphene	8001-35-1	0.0095	(2)	2.6	(1)
K042	NA	NA	1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	(2)	4.4	(1)
			o-Dichlorobenzene	95-50-1	0.088	(2)	4.4	(1)
			p-Dichlorobenzene	106-46-7	0.090	(2)	4.4	(1)
			Pentachlorobenzene	608-93-5	0.055	(2)	4.4	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055	(2)	4.4	(1)
K043	NA	NA	2,4-Dichlorophenol	120-83-2	0.049	(1)	0.38	(1)
			2,6-Dichlorophenol	87-65-0	0.013	(1)	0.34	(1)
			2,4,5-Trichlorophenol	95-95-4	0.016	(1)	8.2	(1)
			2,4,6-Trichlorophenol	88-06-2	0.039	(1)	7.6	(1)
			Tetrachlorophenols (Total)		0.018	(1)	0.68	(1)
			Pentachlorophenol	87-86-5	0.022	(1)	1.9	(1)
			Tetrachloroethene	79-01-6	0.006	(1)	1.7	(1)
			Hexachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Hexachlorodibenzo-furans		0.001	(1)	0.001	(1)
			Pentachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Pentachlorodibenzo-furans		0.001	(1)	0.001	(1)
			Tetrachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Tetrachlorodibenzo-furans		0.001	(1)	0.001	(1)
K046	NA	Table CCWE in 33-24-05-281	Lead	7439-92-1	0.37		NA	

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K048	NA	Table CCWE in 33-24-05-281	Benzene	71-43-2	0.14	(2)	14	(1)
			Benzo(a)pyrene	50-32-8	0.061	(2)	12	(1)
			Bis(2-ethylhexyl) phthalate	117-81-7	0.28	(2)	7.3	(1)
			Chrysene	218-01-9	0.059	(2)	15	(1)
			Di-n-butyl phthalate	84-74-2	0.057	(2)	3.6	(1)
			Ethylbenzene	100-41-4	0.057	(2)	14	(1)
			Fluorene	86-73-7	0.059	(2)	NA	
			Naphthalene	91-20-3	0.059	(2)	42	(1)
			Phenanthrene	85-01-8	0.059	(2)	34	(1)
			Phenol	108-95-2	0.039	(2)	3.6	(1)
			Pyrene	129-00-0	0.067	(2)	36	(1)
			Toluene	108-88-3	0.080	(2)	14	(1)
			Xylene(s)		0.32	(2)	22	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
K049	NA	Table CCWE in 33-24-05-281	Anthracene	120-12-7	0.059	(2)	28	(1)
			Benzene	71-43-2	0.14	(2)	14	(1)
			Benzo(a)pyrene	50-32-5	0.061	(2)	12	(1)
			Bis(2-ethylhexyl) phthalate	75-150-0	0.28	(2)	7.3	(1)
			Carbon disulfide	75-15-0	0.014	(2)	NA	
			Chrysene	2218-01-9	0.059	(2)	15	(1)
			2,4-Dimethyl phenol	105-67-9	0.036	(2)	NA	

~~Table CCW - Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
			~~Ethylbenzene~~	~~100-41-4~~	~~0.057~~	~~(2)~~	~~14~~	~~(1)~~
			~~Naphthalene~~	~~91-20-3~~	~~0.059~~	~~(2)~~	~~42~~	~~(1)~~
			~~Phenanthrene~~	~~85-01-8~~	~~0.059~~	~~(2)~~	~~34~~	~~(1)~~
			~~Phenol~~	~~108-95-2~~	~~0.039~~	~~(2)~~	~~3.6~~	~~(1)~~
			~~Pyrene~~	~~129-00-0~~	~~0.067~~	~~(2)~~	~~36~~	~~(1)~~
			~~Toluene~~	~~108-88-3~~	~~0.08~~	~~(2)~~	~~14~~	~~(1)~~
			~~Xylene(c)~~		~~0.32~~	~~(2)~~	~~22~~	~~(1)~~
			~~Cyanides (Total)~~	~~56-12-5~~	~~0.028~~	~~(1)~~	~~1.8~~	~~(1)~~
			~~Chromium (Total)~~	~~7440-47-32~~	~~0.2~~		~~NA~~	
~~K050~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Lead~~	~~7439-92-1~~	~~0.037~~		~~NA~~	
			~~Benzo(a)pyrene~~	~~50-32-8~~	~~0.061~~	~~(2)~~	~~12~~	~~(1)~~
			~~Phenol~~	~~108-95-2~~	~~0.039~~	~~(2)~~	~~3.6~~	~~(1)~~
			~~Cyanides (Total)~~	~~57-12-5~~	~~0.028~~	~~(1)~~	~~1.8~~	~~(1)~~
			~~Chromium (Total)~~	~~7440-47-32~~	~~0.2~~		~~NA~~	
			~~Lead~~	~~7439-29-1~~	~~0.037~~		~~NA~~	
~~K051~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Acenaphthene~~	~~83-32-9~~	~~0.059~~	~~(2)~~	~~NA~~	
			~~Anthracene~~	~~120-12-7~~	~~0.059~~	~~(2)~~	~~28~~	~~(1)~~
			~~Benzene~~	~~71-43-2~~	~~0.14~~	~~(2)~~	~~14~~	~~(1)~~
			~~Benzo(a) anthracene~~	~~56-55-3~~	~~0.059~~	~~(2)~~	~~20~~	~~(1)~~
			~~Benzo(a)pyrene~~	~~50-32-8~~	~~0.061~~	~~(2)~~	~~12~~	~~(1)~~
			~~Bis(2-ethylhexyl) phthalate~~	~~75-15-0~~	~~0.28~~	~~(2)~~	~~7.3~~	~~(1)~~
			~~Chrysene~~	~~2218-01-9~~	~~0.059~~	~~(2)~~	~~15~~	~~(1)~~
			~~Di-n-butyl phthalate~~	~~105-67-9~~	~~0.057~~	~~(2)~~	~~3.6~~	~~(1)~~

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Ethylbenzene	100-41-4	0.057	(2)	14	(1)
			Fluorene	86-73-7	0.059	(2)	NA	
			Naphthalene	91-20-3	0.059	(2)	42	(1)
			Phenanthrene	85-01-8	0.059	(2)	34	(1)
			Phenol	108-95-2	0.039	(2)	3.6	(1)
			Pyrene	129-00-0	0.067	(2)	36	(1)
			Toluene	108-88-3	0.08	(2)	14	(1)
			Xylene(s)		0.32	(2)	22	(1)
			Cyandides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
K052	NA	Table CCWE in 33-24-05-281	Benzene	71-43-2	0.14	(2)	14	(1)
			Benzo(a)pyrene	50-32-8	0.061	(2)	12	(1)
			o-Cresol	95-48-7	0.11	(2)	6.2	(1)
			p-Cresol	106-44-5	0.77	(2)	6.2	(1)
			2,4-Dimethylphenol	105-67-9	0.036	(2)	NA	
			Ethylbenzene	100-41-4	0.057	(2)	14	(1)
			Naphthalene	91-20-3	0.059	(2)	42	(1)
			Phenanthrene	85-01-8	0.059	(2)	34	(1)
			Phenol	108-95-2	0.039	(2)	3.6	(1)
			Toluene	108-88-3	0.08	(2)	14	(1)
			Xylenes		0.32	(2)	22	(1)
			Cyanides (Total)	56-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Lead	7439-92-1	0.037		NA	
K060	NA	NA	Benzene	71-43-2	0.17	(1,2)	0.071	(1)
			Benzo(a)pyrene	50-32-8	0.035	(1,2)	3.6	(1)
			Naphthalene	91-20-3	0.028	(1,2)	3.4	(1)
			Phenol	108-95-2	0.042	(1,2)	3.4	(1)
			Cyanides (Total)	57-12-5	1.9		1.2	
K061	NA	Table CCWE in 33-24-05-281	Cadmium	7440-43-9	1.61		NA	
			Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.51		NA	
			Nickel	7440-02-0	0.44		NA	
K062	NA	Table CCWE in 33-24-05-281	Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.04		NA	
			Nickel	7440-02-0	0.44		NA	
K069	NA	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282	Cadmium	7440-43-9	1.6		NA	
			Lead	7439-92-1	0.51		NA	
K071	NA	Table CCWE in 33-24-05-281	Mercury	7439-97-6	0.030		NA	
K073	NA	NA	Carbon tetrachloride	56-23-5	0.057	(2)	6.2	(1)
			Chloroform	67-66-3	0.046	(2)	6.2	(1)
			Hexachloroethane	67-72-1	0.055	(2)	30	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Tetrachloroethane	127-18-4	0.056	(2)	6.2	(1)
			1,1,1-Trichloroethane	71-55-6	0.054	(2)	6.2	(1)
K083	NA	Table CCWE in 33-24-05-281	Benzene	71-43-2	0.14	(2)	6.6	(1)
			Aniline	62-53-3	0.81		14	(1)
			Diphenylamine	22-39-4	0.52	(2)	NA	
			Diphenylnitrosamine	86-30-6	0.40	(2)	NA	
			Sum of Diphenylamine and Diphenylnitrosamine		NA		14	(1)
			Nitrobenzene	98-95-3	0.068	(2)	14	(1)
			Phenol	108-95-2	0.039		5.6	(1)
			Cyclohexanone	108-94-1	0.36		NA	
			Nickel	7440-02-0	0.47		NA	
K084	NA	NA	Arsenic	7440-38-2	0.79		NA	
K085	NA	NA	Benzene	71-43-2	0.14	(2)	4.4	(1)
			Chlorobenzene	108-90-7	0.057	(2)	4.4	(1)
			o-Dichlorobenzene	95-50-1	0.088	(2)	4.4	(1)
			m-Dichlorobenzene	541-73-1	0.036	(2)	4.4	(1)
			p-Dichlorobenzene	106-46-7	0.090	(2)	4.4	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055	(2)	4.4	(1)
			1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	(2)	4.4	(1)
			Pentachlorobenzene	608-93-5	0.055	(2)	4.4	(1)
			Hexachlorobenzene	118-74-1	0.055	(2)	4.4	(1)
			Aroclor 1016	12674-11-2	0.013	(2)	0.92	(1)
			Aroclor 1221	11104-28-2	0.014	(2)	0.92	(1)
			Aroclor 1232	11141-16-5	0.013	(2)	0.92	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Aroclor 1242	53469-21-9	0.017	(2)	0.92	(1)
			Aroclor 1248	12672-29-6	0.013	(2)	0.92	(1)
			Aroclor 1254	11097-69-1	0.014	(2)	1.8	(1)
			Aroclor 1260	11096-82-5	0.014	(2)	1.8	(1)
K086	NA	Table CCWE in 33-24-05-281	Acetone	67-64-1	0.28		160	(1)
			Acetophenone	96-86-2	0.010		9.7	(1)
			Bis(2-ethylhexyl)phthalate	117-81-7	0.28	(2)	28	(1)
			n-Butyl alcohol	71-36-3	5.6		2.6	(1)
			Butylbenzylphthalate	85-68-7	0.017	(2)	7.9	(1)
			Cyclohexanone	108-94-1	0.36		NA	
			1,2-Dichlorobenzene	95-50-1	0.088		6.2	(1)
			Diethyl phthalate	84-66-2	0.20	(2)	28	(1)
			Dimethyl phthalate	131-11-3	0.047	(2)	28	(1)
			Di-n-butyl phthalate	84-74-2	0.057	(2)	28	(1)
			Di-n-octyl phthalate	117-84-0	0.017	(2)	28	(1)
			Ethyl acetate	141-78-6	0.34	(2)	33	(1)
			Ethylbenzene	100-41-4	0.057	(2)	6.0	(1)
			Methanol	67-56-1	5.6	(2)	NA	
			Methyl isobutyl ketone	108-10-1	0.14		33	(1)
			Methyl ethyl ketone	78-93-3	0.28		36	(1)
			Methylene chloride	75-09-2	0.089	(2)	33	(1)
			Naphthalene	91-20-3	0.059	(2)	3.1	(1)
			Nitrobenzene	98-95-3	0.068	(2)	14	(1)
			Toluene	108-88-3	0.080	(2)	28	(1)

~~Table CCW -- Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
			~~1,1,1-Trichloroethane~~	~~71-55-6~~	~~0.054~~	~~(2)~~	~~5.6~~	~~(1)~~
			~~Trichloroethylene~~	~~79-01-6~~	~~0.054~~	~~(2)~~	~~5.6~~	~~(1)~~
			~~Xylenes (Total)~~		~~0.32~~	~~(2)~~	~~28~~	~~(1)~~
			~~Cyanides (Total)~~	~~57-12-5~~	~~1.9~~		~~1.5~~	~~(1)~~
			~~Chromium (Total)~~	~~7440-47-32~~	~~0.32~~		~~NA~~	
			~~Lead~~	~~7439-92-1~~	~~0.037~~		~~NA~~	
~~K087~~	~~NA~~	~~Table CCWE in 33-24-05-281~~	~~Acenaphthalene~~	~~208-96-8~~	~~0.059~~	~~(2)~~	~~3.4~~	
			~~Benzene~~	~~71-43-2~~	~~0.14~~	~~(2)~~	~~0.071~~	~~(1)~~
			~~Chrysene~~	~~218-01-9~~	~~0.059~~	~~(2)~~	~~3.4~~	~~(1)~~
			~~Fluoranthene~~	~~206-44-0~~	~~0.068~~	~~(2)~~	~~3.4~~	~~(1)~~
			~~Indeno (1,2,3-cd) pyrene~~	~~193-39-5~~	~~0.0055~~	~~(2)~~	~~3.4~~	~~(1)~~
			~~Naphthalene~~	~~91-20-3~~	~~0.059~~	~~(2)~~	~~3.4~~	~~(1)~~
			~~Phenanthrene~~	~~85-01-8~~	~~0.059~~	~~(2)~~	~~3.4~~	~~(1)~~
			~~Toluene~~	~~108-88-3~~	~~0.08~~	~~(2)~~	~~0.65~~	~~(1)~~
			~~Xylenes~~		~~0.32~~	~~(2)~~	~~0.07~~	~~(1)~~
			~~Lead~~	~~7439-92-1~~	~~0.037~~		~~NA~~	
~~K093~~	~~NA~~		~~Phthalic anhydride (measured as Phthalic acid)~~	~~85-44-9~~	~~0.069~~		~~28~~	~~(1)~~
~~K094~~	~~NA~~		~~Phthalic anhydride (measured as Phthalic acid)~~	~~85-44-9~~	~~0.069~~		~~28~~	~~(1)~~
~~K095~~	~~NA~~	~~NA~~	~~1,1,1,2-Tetrachloroethane~~	~~630-20-6~~	~~0.057~~		~~5.6~~	~~(1)~~
			~~1,1,2,2-Tetrachloroethane~~	~~79-34-6~~	~~0.057~~		~~5.6~~	~~(1)~~
			~~Tetrachloroethene~~	~~127-18-4~~	~~0.056~~		~~6.0~~	~~(1)~~
			~~1,1,2-Trichloroethane~~	~~79-00-5~~	~~0.054~~		~~6.0~~	~~(1)~~
			~~Trichloroethylene~~	~~79-01-6~~	~~0.054~~		~~5.6~~	~~(1)~~

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Hexachloroethane	67-72-1	0.055		28	(1)
			Pentachloroethane	76-01-7	0.055		5.6	(1)
K096	NA	NA	1,1,1,2-Tetrachloroethane	630-20-6	0.057		5.6	(1)
			1,1,2,2-Tetrachloroethane	79-34-6	0.057		5.6	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
			1,1,2-Trichloroethane	79-00-5	0.054		6.0	(1)
			Trichloroethene	79-01-6	0.054		5.6	(1)
			Trichloroethylene	79-01-6	0.054		5.6	(1)
			1,3-Dichlorobenzene	541-73-1	0.036		5.6	(1)
			Pentachloroethane	76-01-7	0.055		5.6	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055		19	(1)
K097	NA	NA	Hexachlorocyclopentadiene	77-47-4	0.057	(2)	2.4	(1)
			Chlordane	57-74-9	0.0033	(2)	0.26	(1)
			Heptachlor	76-44-8	0.0012	(2)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(2)	0.066	(1)
K098	NA	NA	Toxaphene	8001-35-1	0.0095	(2)	2.6	(1)
K099	NA	NA	2,4-Dichlorophenoxyacetic acid	94-75-7	1.0	(1)	1.0	(1)
			Hexachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Hexachlorodibenzofurans		0.001	(1)	0.001	(1)
			Pentachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Pentachlorodibenzofurans		0.001	(1)	0.001	(1)
			Tetrachlorodibenzo-p-dioxins		0.001	(1)	0.001	(1)
			Tetrachlorodibenzofurans		0.001	(1)	0.001	(1)
K100	NA	Table CCWE in 33-24-05-281	Cadmium	7440-43-9	1.6		NA	

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Chromium (Total)	7440-47-32	0.32		NA	
			Lead	7439-92-1	0.51		NA	
K101	NA	NA	o-Nitroaniline		0.27	(1)	14	(1)
			Arsenic	7440-38-2	0.79		NA	
			Cadmium	7440-43-9	0.24		NA	
			Lead	7439-92-1	0.17		NA	
			Mercury	7439-97-6	0.082		NA	
K102	NA	Table CCWE in 33-24-05-281	o-Nitrophenol		0.028	(1)	13	(1)
			Arsenic	7440-38-2	0.79		NA	
			Cadmium	7440-43-9	0.24		NA	
			Lead	7439-92-1	0.17		NA	
			Mercury	7439-97-6	0.082		NA	
K103	NA	NA	Aniline	62-53-3	4.5		5.6	(1)
			Benzene	71-43-2	0.15		6.0	(1)
			2,4-Dinitrophenol	51-28-5	0.61		5.6	(1)
			Nitrobenzene	98-95-3	0.073		5.6	(1)
			Phenol	108-95-2	1.4		5.6	(1)
K104	NA	NA	Aniline	62-53-3	4.5		5.6	(1)
			Benzene	71-43-2	0.15		6.0	(1)
			2,4-Dinitrophenol	51-28-5	0.61		5.6	(1)
			Nitrobenzene	98-95-3	0.073		5.6	(1)
			Phenol	108-95-2	1.4		5.6	(1)
			Cyanides (Total)	57-12-5	2.7		1.8	(1)
K105	NA	NA	Benzene	71-43-2	0.14		4.4	(1)

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Chlorobenzene	108-90-7	0.057		4.4	(1)
			o-Dichlorobenzene	95-50-1	0.088		4.4	(1)
			p-Dichlorobenzene	106-46-7	0.090		4.4	(1)
			2,4,5-Trichlorophenol	95-95-4	0.18		4.4	(1)
			2,4,6-Trichlorophenol	88-06-2	0.035		4.4	(1)
			2-Chlorophenol	95-57-8	0.044		4.4	(1)
			Phenol	108-95-2	0.039		4.4	(1)
K106	NA	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282	Mercury	7439-97-6	0.030		NA	
K111	NA		2,4-Dinitrotoluene	121-14-2	0.32		140	(1)
			2,6-Dinitrotoluene	606-20-2	0.55		28	(1)
K115	NA	Table CCWE in 33-24-05-281	Nickel	7440-02-0	0.47		NA	
K117	NA		Ethylene dibromide	106-93-4	0.028		15	(1)
			Methyl bromide	74-83-9	0.11		15	(1)
			Chloroform	67-66-3	0.046		5.6	(1)
K118	NA		Ethylene dibromide	106-93-4	0.028		15	(1)
			Methyl bromide	74-83-9	0.11		15	(1)
			Chloroform	67-66-3	0.046		5.6	(1)
K131	NA		Methyl bromide	74-83-9	0.11		15	(1)
K132	NA		Methyl bromide	74-83-9	0.11		15	(1)
K136	NA		Ethylene dibromide	106-93-4	0.028		15	(1)
			Methyl bromide	74-83-9	0.11		15	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Chloroform	67-66-3	0.046		5.6	(1)
P004	Aldrin	NA	Aldrin	309-00-2	0.021	(2)	0.066	(1)
P010	Arsenic acid	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	
P011	Arsenic pentoxide	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	
P012	Arsenic trioxide	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	
P013	Barium cyanide	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P020	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	NA	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	0.066		2.5	(1)
P021	Calcium cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P022	Carbon disulfide	Table 2 in 33-24-05-282	Carbon disulfide	75-15-0	0.014		NA	
P024	p-Chloroaniline	NA	p-Chloroaniline	106-47-8	0.46		16	(1)
P029	Copper cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P030	Cyanides (soluble salts and complexes)	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
P036	Dichlorophenylarsine	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	
P037	Dieldrin	NA	Dieldrin	60-57-1	0.017	(2)	0.13	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
P038	Diethylarsine	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	
P039	Disulfoton	NA	Disulfoton	298-04-4	0.017		0.1	(1)
P047	4,6-Dinitro-o-cresol	NA	4,6-Dinitro-o-cresol	534-52-1	0.28	(2)	160	(1)
P048	2,4-Dinitrophenol	NA	2,4-Dinitrophenol	51-28-5	0.12	(2)	160	(1)
P050	Endosulfan	NA	Endosulfan I	939-98-8	0.023	(2)	0.066	(1)
			Endosulfan II	33213-6-5	0.029	(2)	0.13	(1)
			Endosulfan sulfate	1031-07-8	0.029	(2)	0.13	(1)
P051	Endrin	NA	Endrin	72-20-8	0.0028	(2)	0.13	(1)
			Endrin aldehyde	7421-93-4	0.025	(2)	0.13	(1)
P056	Fluoride	Table 2 in 33-24-05-282	Fluoride	16964-48-8	35		NA	
P059	Heptachlor	NA	Heptachlor	76-44-8	0.0012	(2)	0.066	(1)
			Heptachlor epoxide	1024-57-3	0.016	(2)	0.066	(1)
P060	Isodrin	NA	Isodrin	465-73-6	0.021	(2)	0.066	(1)
P063	Hydrogen cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P065	Mercury fulminate	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282	Mercury	7439-97-6	0.030		NA	
P071	Methyl parathion	NA	Methyl parathion	298-00-0	0.025		0.1	(1)
P073	Nickel carbonyl	Table CCWE in 33-24-05-281	Nickel	7440-02-0	0.44		NA	

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
P074	Nickel cyanide	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
			Nickel	7440-02-0	0.44		NA	
P077	p-Nitroaniline	NA	p-Nitroaniline	100-01-6	0.028	(2)	28	(1)
P082	N-Nitrosodimethylamine	Table 2 in 33-24-05-282	N-Nitrosodimethylamine	62-75-9	0.40	(2)	NA	
P089	Parathion	NA	Parathion	56-38-2	0.025		0.1	(1)
P092	Phenylmercury acetate	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282	Mercury	7439-97-6	0.030		NA	
P094	Phorate	NA	Phorate	298-02-2	0.025		0.1	(1)
P097	Famphur	NA	Famphur	52-85-7	0.025		0.1	(1)
P098	Potassium cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P099	Potassium silver cyanide	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.1		9.1	
			Silver	7440-22-4	0.29		NA	
P101	Ethyl cyanide (Propanenitrile)	NA	Ethyl cyanide (Propanenitrile)	107-12-0	0.24	(2)	360	(1)
P103	Selenourea	Table CCWE in 33-24-05-281	Selenium	7782-49-2	1.0	(2)	NA	

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
P104	Silver cyanide	Table CCWE in 33-24-05-281	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
			Silver	7440-22-4	0.29		NA	
P106	Sodium cyanide	NA	Cyanides (Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P110	Tetraethyl lead	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282	Lead	7439-92-1	0.040		NA	
P113	Thallic oxide	Table 2 in 33-24-05-282	Thallium	7440-28-0	0.14	(2)	NA	
P114	Thallium selenite	Table CCWE in 33-24-05-281	Selenium	7782-49-2	1.0		NA	
P115	Thallium(I)sulfate	Table 2 in 33-24-05-282	Thallium	7440-28-0	0.14	(2)	NA	
P119	Ammonia vandate	Table 2 in 33-24-05-282	Vanadium	7440-62-2	28	(2)	NA	
P120	Vanadium pentoxide	Table 2 in 33-24-05-282	Vanadium	7440-62-2	28	(2)	NA	
P121	Zinc cyanide	NA	Cyanides Total)	57-12-5	1.9		110	
			Cyanides (Amenable)	57-12-5	0.10		9.1	
P123	Toxaphene	NA	Toxaphene	8001-35-1	0.0095	(2)	1.3	(1)
U002	Acetone	NA	Acetone	67-64-1	0.28		160	(1)

~~Table CCW - Constituent Concentrations in Wastes~~

~~Waste Code~~	~~Commercial Chemical Name~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS number for Regulated Hazardous Constituent~~	~~Wastewaters~~		~~Nonwastewaters~~	
					~~Concentration (mg/l)~~	~~Notes~~	~~Concentration (mg/kg)~~	~~Notes~~
~~U003~~	~~Acetonitrile~~	~~Table 2 in 33-24-05-282~~	~~Acetonitrile~~	~~75-05-8~~	~~0.17~~		~~NA~~	
~~U004~~	~~Acetophenone~~	~~NA~~	~~Acetophenone~~	~~98-86-2~~	~~0.010~~	~~(1)~~	~~9.7~~	~~(1)~~
~~U005~~	~~2-Acetylaminofluorene~~	~~NA~~	~~2-Acetylaminofluorene~~	~~53-96-3~~	~~0.059~~	~~(2)~~	~~140~~	~~(1)~~
~~U009~~	~~Acrylonitrile~~	~~NA~~	~~Acrylonitrile~~	~~107-13-1~~	~~0.24~~	~~(2)~~	~~84~~	~~(1)~~
~~U012~~	~~Aniline~~	~~NA~~	~~Aniline~~	~~62-53-3~~	~~0.81~~		~~14~~	~~(1)~~
~~U018~~	~~Benz(a)anthracene~~	~~NA~~	~~Benz(a)anthracene~~	~~56-55-3~~	~~0.059~~	~~(2)~~	~~8.2~~	~~(1)~~
~~U019~~	~~Benzene~~	~~NA~~	~~Benzene~~	~~71-43-2~~	~~0.14~~	~~(2)~~	~~36~~	~~(1)~~
~~U022~~	~~Benzo(a)pyrene~~	~~NA~~	~~Benzo(a)pyrene~~	~~50-32-8~~	~~0.061~~	~~(2)~~	~~8.2~~	~~(1)~~
~~U024~~	~~Bis(2-chloroethoxy)methane~~	~~NA~~	~~Bis(2-chloroethoxy)methane~~	~~111-91-1~~	~~0.036~~		~~7.2~~	~~(1)~~
~~U025~~	~~Bis(2-chloroethyl)ether~~	~~NA~~	~~Bis(2-chloroethyl)ether~~	~~111-44-4~~	~~0.033~~		~~7.2~~	~~(1)~~
~~U027~~	~~Bis(2-chloroisopropyl)ether~~	~~NA~~	~~Bis(2-chloroisopropyl)ether~~	~~39638-32-9~~	~~0.055~~	~~(2)~~	~~7.2~~	~~(1)~~
~~U028~~	~~Bis(2-ethylhexyl) phthalate~~		~~Bis(2-ethylhexyl) phthalate~~	~~117-81-7~~	~~0.28~~		~~28~~	~~(1)~~
~~U029~~	~~Bromomethane (Methyl bromide)~~	~~NA~~	~~Bromomethane (Methyl bromide)~~	~~74-83-9~~	~~0.11~~	~~(1)~~	~~15~~	~~(1)~~
~~U030~~	~~4-Bromophenyl phenyl ether~~	~~NA~~	~~4-Bromophenyl phenyl ether~~	~~101-55-3~~	~~0.055~~	~~(1)~~	~~15~~	~~(1)~~
~~U031~~	~~n-Butyl alcohol~~	~~NA~~	~~n-Butyl alcohol~~	~~71-36-3~~	~~5.6~~		~~2.6~~	~~(1)~~
~~U032~~	~~Calcium chromate~~	~~Table CCWE in 33-24-05-281~~	~~Chromium (Total)~~	~~7440-47-32~~	~~0.32~~		~~NA~~	
~~U036~~	~~Chlordane (alpha and gamma)~~	~~NA~~	~~Chlordane (alpha and gamma)~~	~~57-74-9~~	~~0.0033~~	~~(2)~~	~~0.13~~	~~(1)~~
~~U037~~	~~Chlorobenzene~~	~~NA~~	~~Chlorobenzene~~	~~108-90-7~~	~~0.057~~	~~(2)~~	~~5.7~~	~~(1)~~
~~U038~~	~~Chlorobenzilate~~	~~Table 2 in 33-24-05-282~~	~~Chlorobenzilate~~	~~510-15-6~~	~~0.10~~	~~(2)~~	~~NA~~	
~~U039~~	~~p-Chloro-m-cresol~~	~~NA~~	~~p-Chloro-m-cresol~~	~~59-50-7~~	~~0.018~~	~~(2)~~	~~14~~	~~(1)~~
~~U043~~	~~Vinyl chloride~~	~~NA~~	~~Vinyl chloride~~	~~75-01-4~~	~~0.27~~	~~(2)~~	~~33~~	~~(1)~~

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U044	Chloroform	NA	Chloroform	67-66-3	0.046	(2)	5.6	(1)
U045	Chloromethane (Methyl chloride)	NA	Chloromethane (Methyl chloride)	74-87-3	0.19	(2)	33	(1)
U047	2-Chloronaphthalene	NA	2-Chloronaphthalene	91-58-7	0.055	(2)	5.6	(1)
U048	2-Chlorophenol	NA	2-Chlorophenol	95-57-8	0.044	(2)	5.7	(1)
U050	Chrysene	NA	Chrysene	218-01-9	0.059	(2)	8.2	(1)
U051	Creosote	Table CCWE in 33-24-05-281	Naphthalene	91-20-3	0.031		1.5	(1)
			Pentachlorophenol	87-86-5	0.18		7.4	(1)
			Phenanthrene	85-01-8	0.031		1.5	(1)
			Pyrene	129-00-0	0.028		1.5	(1)
			Toluene	108-88-3	0.028		28	(1)
			Xylenes (Total)		0.032		33	(1)
			Lead	7439-92-1	0.037		NA	
U052	Cresols (Cresylic acid)	NA	o-Cresol	95-48-7	0.11	(2)	5.6	(1)
			Cresols (m- and p- isomers)		0.77	(2)	3.2	(1)
U057	Cyclohexanone	Table 2 in 33-24-05-282	Cyclohexanone	108-94-1	0.36		NA	
U060	DDD	NA	o,p'-DDD	53-19-0	0.023		0.087	(1)
			p,p'-DDD	72-54-8	0.023		0.087	(1)
U061	DDT	NA	o,p'-DDT	789-02-6	0.0039	(2)	0.087	(1)
			p,p'-DDT	50-29-3	0.0039	(2)	0.087	(1)
			o,p'-DDD	53-19-0	0.023	(2)	0.087	(1)
			p,p'-DDD	72-54-8	0.023	(2)	0.087	(1)
			o,p'-DDE	3424-82-6	0.031	(2)	0.087	(1)
			p,p'-DDE	72-55-9	0.031	(2)	0.087	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U063	Dibenzo(a,h)anthracene	NA	Dibenzo(a,h)anthracene	53-70-3	0.055	(2)	8.2	(1)
U066	1,2-Dibromo-3-chloropropane	NA	1,2-Dibromo-3-chloropropane	96-12-8	0.11	(2)	15	(1)
U067	1,2-Dibromoethane (Ethylene dibromide)	NA	1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.028	(2)	15	(1)
U068	Dibromomethane	NA	Dibromomethane	74-95-3	0.11	(2)	15	(1)
U069	Di-n-butyl phthalate		Di-n-butyl phthalate	84-74-2	0.057		28	(1)
U070	o-Dichlorobenzene	NA	o-Dichlorobenzene	95-50-1	0.088	(2)	6.2	(1)
U071	m-Dichlorobenzene	NA	m-Dichlorobenzene	541-73-1	0.036		6.2	(1)
U072	p-Dichlorobenzene	NA	p-Dichlorobenzene	104-46-7	0.090	(2)	6.2	(1)
U075	Dichlorodifluoromethane	NA	Dichlorodifluoromethane	75-71-8	0.23	(2)	7.2	(1)
U076	1,1-Dichloroethane	NA	1,1-Dichloroethane	75-34-3	0.059	(2)	7.2	(1)
U077	1,2-Dichloroethane	NA	1,2-Dichloroethane	107-06-2	0.21	(2)	7.2	(1)
U078	1,1-Dichloroethylene	NA	1,1-Dichloroethylene	75-35-4	0.025	(2)	33	(1)
U079	1,2-Dichloroethylene	NA	trans-1,2-Dichloroethylene	156-60-5	0.054	(2)	33	(1)
U080	Methylene chloride	NA	Methylene chloride	75-09-2	0.089	(2)	33	(1)
U081	2,4-Dichlorophenol	NA	2,4-Dichlorophenol	120-83-2	0.044	(2)	14	(1)
U082	2,6-Dichlorophenol	NA	2,6-Dichlorophenol	87-65-0	0.044	(2)	14	(1)
U083	1,2-Dichloropropane	NA	1,2-Dichloropropane	78-87-5	0.85	(2)	18	(1)
U084	1,3-Dichloropropene	NA	cis-1,3-Dichloropropylene	10061-01-5	0.036	(2)	18	(1)
			trans-1,3-Dichloropropylene	10061-02-6	0.036	(2)	18	(1)
U088	Diethyl phthalate		Diethyl phthalate	84-66-2	0.2		28	(1)
U093	p-Dimethylaminoazobenzene	Table 2 in 33-24-05-282	p-Dimethylaminoazobenzene	60-11-7	0.13	(2)	NA	
U101	2,4-Dimethylphenol	NA	2,4-Dimethylphenol	105-67-9	0.036	(2)	14	(1)
U102	Dimethyl phthalate		Dimethyl phthalate	131-11-3	0.047		28	(1)
U105	2,4-Dinitrotoluene	NA	2,4-Dinitrotoluene	121-14-2	0.32	(2)	140	(1)

Table CCW -- Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U106	2,6-Dinitrotoluene	NA	2,6-Dinitrotoluene	606-20-2	0.55	(2)	28	(1)
U107	Di-n-octyl phthalate		Di-n-octyl phthalate	117-84-0	0.017		28	(1)
U108	1,4-Dioxane	NA	1,4-Dioxane	123-91-1	0.12	(2)	170	(1)
U111	Di-n-propylnitrosoamine	NA	Di-n-propylnitrosoamine	621-64-7	0.40	(2)	14	(1)
U112	Ethyl acetate	NA	Ethyl acetate	141-78-6	0.34	(2)	33	(1)
U117	Ethyl ether	NA	Ethyl ether	60-29-7	0.12	(2)	160	(1)
U118	Ethyl methacrylate	NA	Ethyl methacrylate	97-63-2	0.14	(2)	160	(1)
U120	Fluoranthene	NA	Fluoranthene	206-44-0	0.068	(2)	8.2	(1)
U121	Trichloromonofluoromethane	NA	Trichloromonofluoromethane	75-69-4	0.020	(2)	33	(1)
U127	Hexachlorobenzene	NA	Hexachlorobenzene	118-74-1	0.055	(2)	37	(1)
U128	Hexachlorobutadiene	NA	Hexachlorobutadiene	87-68-3	0.055	(2)	28	(1)
U129	Lindane	NA	alpha-BHC	319-84-6	0.00014	(2)	0.66	(1)
			beta-BHC	319-85-7	0.00014	(2)	0.66	(1)
			Delta-BHC	319-86-8	0.023	(2)	0.66	(1)
			gamma-BHC (Lindane)	58-89-9	0.0017	(2)	0.66	(1)
U130	Hexachlorocyclopentadiene	NA	Hexachlorocyclopentadiene	77-47-7	0.057	(2)	3.6	(1)
U131	Hexachloroethane	NA	Hexachloroethane	67-72-1	0.055	(2)	28	(1)
U134	Hydrogen fluoride	Table 2 in 33-24-05-282	Fluoride	16964-48-8	35		NA	
U136	Cacodylic acid	Table CCWE in 33-24-05-281	Arsenic	7440-38-2	0.79		NA	
U137	Indeno(1,2,3-c,d)pyrene	NA	Indeno(1,2,3-c,d)pyrene	193-39-5	0.0055	(2)	8.2	(1)
U138	Iodomethane	NA	Iodomethane	74-88-4	0.19	(2)	65	(1)
U140	Isobutyl alcohol	NA	Isobutyl alcohol	78-83-1	5.6		170	(1)
U141	Isosafrole	NA	Isosafrole	120-58-1	0.081		2.6	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U142	Kepone	NA	Kepone	143-50-8	0.0011		0.13	(1)
U144	Lead acetate	Table CCWE in 33-24-05-281	Lead	7439-92-1	0.040		NA	
U145	Lead phosphate	Table CCWE in 33-24-05-281	Lead	7439-92-1	0.040		NA	
U146	Lead subacetate	Table CCWE in 33-24-05-281	Lead	7439-92-1	0.040		NA	
U151	Mercury	Table CCWE in 33-24-05-281 and Table 2 in 33-24-05-282	Mercury	7439-97-6	0.030		NA	
U152	Methacrylonitrile	NA	Methacrylonitrile	126-98-7	0.24	(2)	84	(1)
U154	Methanol	See also Table 2 in 33-24-05-282	Methanol	67-56-1	5.6		NA	
U155	Methapyrilene	NA	Methapyrilene	91-80-5	0.081		1.5	(1)
U157	3-Methylcholanthrene	NA	3-Methylcholanthrene	56-49-5	0.0055	(2)	15	(1)
U158	4,4'-Methylenebis(2-chloroaniline)	NA	4,4'-Methylenebis(2-chloroaniline)	101-14-4	0.50	(2)	35	(1)
U159	Methyl ethyl ketone	NA	Methyl ethyl ketone	78-93-3	0.28		36	(1)
U161	Methyl isobutyl ketone	NA	Methyl isobutyl ketone	108-10-1	0.14		33	(1)
U162	Methyl methacrylate	NA	Methyl methacrylate	80-62-6	0.14		160	(1)
U165	Naphthalene	NA	Naphthalene	91-20-3	0.059	(2)	3.1	(1)
U168	2-Naphthylamine	Table 2 in 33-24-05-282	2-Naphthylamine	91-59-8	0.52	(2)	NA	
U169	Nitrobenzene	NA	Nitrobenzene	98-95-3	0.068	(2)	14	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U170	4-Nitrophenol	NA	4-Nitrophenol	100-02-7	0.12	(2)	29	(1)
U172	N-Nitrosodi-n-butylamine	NA	N-Nitrosodi-n-butylamine	924-16-3	0.40	(2)	17	(1)
U174	N-Nitrosodiethylamine	NA	N-Nitrosodiethylamine	55-18-5	0.40	(2)	28	(1)
U179	N-Nitrosopiperidine	NA	N-Nitrosopiperidine	100-75-4	0.013	(2)	35	(1)
U180	N-Nitrosopyrrolidine	NA	N-Nitrosopyrrolidine	930-55-2	0.013	(2)	35	(1)
U181	5-Nitro-o-toluidine	NA	5-Nitro-o-toluidine	99-55-8	0.32	(2)	28	(1)
U183	Pentachlorobenzene	NA	Pentachlorobenzene	608-93-5	0.055	(2)	37	(1)
U185	Pentachloronitrobenzene	NA	Pentachloronitrobenzene	82-68-8	0.055	(2)	4.8	(1)
U187	Phenacetin	NA	Phenacetin	62-44-2	0.081		16	(1)
U188	Phenol	NA	Phenol	108-95-2	0.039		6.2	(1)
U190	Phthalic anhydride (measured as Phthalic acid)		Phthalic anhydride (measured as Phthalic acid)	85-44-9	0.069		28	(1)
U192	Pronamide	NA	Pronamide	23950-58-5	0.093		1.5	(1)
U196	Pyridine	NA	Pyridine	110-86-1	0.014	(2)	16	(1)
U203	Safrole	NA	Safrole	94-59-7	0.081		22	(1)
U204	Selenium dioxide	Table CCWE in 33-24-05-281	Selenium	7782-49-2	1.0		NA	
U205	Selenium sulfide	Table CCWE in 33-24-05-281	Selenium	7782-49-2	1.0		NA	
U207	1,2,4,5-Tetrachlorobenzene	NA	1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	(2)	19	(1)
U208	1,1,1,2-Tetrachloroethane	NA	1,1,1,2-Tetrachloroethane	630-20-6	0.057		42	(1)
U209	1,1,2,2-Tetrachloroethane	NA	1,1,2,2-Tetrachloroethane	79-34-5	0.057	(2)	42	(1)
U210	Tetrachloroethylene	NA	Tetrachloroethylene	127-18-4	0.056	(2)	5.6	(1)
U211	Carbon tetrachloride	NA	Carbon tetrachloride	56-23-5	0.057	(2)	5.6	(1)

Table CCW - Constituent Concentrations in Wastes

Waste Code	Commercial Chemical Name	See Also	Regulated Hazardous Constituent	CAS number for Regulated Hazardous Constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
U214	Thallium(I)acetate	Table 2 in 33-24-05-282	Thallium	7440-28-0	0.14	(2)	NA	
U215	Thallium(I) carbonate	Table 2 in 33-24-05-282	Thallium	7440-28-0	0.14	(2)	NA	
U216	Thallium(I)chloride	Table 2 in 33-24-05-282	Thallium	7440-28-0	0.14	(2)	NA	
U217	Thallium(I)nitrate	Table 2 in 33-24-05-282	Thallium	7440-28-0	0.14	(2)	NA	
U220	Toluene	NA	Toluene	108-88-3	0.080	(2)	28	(1)
U225	Tribromomethane (Bromoform)	NA	Tribromomethane (Bromoform)	75-25-2	0.63	(2)	15	(1)
U226	1,1,1-Trichloroethane	NA	1,1,1-Trichloroethane	71-55-6	0.054	(2)	5.6	(1)
U227	1,1,2-Trichloroethane	NA	1,1,2-Trichloroethane	79-00-5	0.054	(2)	5.6	(1)
U228	Trichloroethylene	NA	Trichloroethylene	79-01-6	0.054	(2)	5.6	(1)
U235	tris-(2,3-Dibromopropyl) phosphate	NA	tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.025		0.10	(1)
U239	Xylenes	NA	Xylenes		0.32	(2)	28	(1)
U240	2,4-Dichlorophenoxyacetic acid	NA	2,4-Dichlorophenoxyacetic acid	94-75-7	0.72		10	(1)
U243	Hexachloropropene	NA	Hexachloropropene	1888-71-7	0.035	(2)	28	
U247	Methoxychlor	NA	Methoxychlor	72-43-5	0.25	(2)	0.18	(1)

FOOTNOTE: [1]Treatment standards for this organic constituent were established based upon incineration in units operated in accordance with the technical requirements of sections 33-24-05-144 through 33-24-05-159, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may certify compliance with these treatment standards according to provisions in section 33-24-05-256.

FOOTNOTE: [2]Based on analysis of composite samples.

FOOTNOTE: [3]As analyzed using SW-846 Method 9010 or 9012; sample size 10 gram; distillation time: one hour and fifteen minutes.

FOOTNOTE: [4]Reserved.

Note: NA means Not Applicable.

PLEASE DISREGARD PAGE NUMBERING ...

COMPUTER SEQUENCING ERROR

FOR VALIDATION OR QUESTIONS CONTACT:

CURT ERICKSON AT 328-5166

~~No land disposal for:~~

~~K005 nonwastewaters generated by the process described in the waste listing description, and disposed after June 8, 1989, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~K007 nonwastewaters generated by the process described in the waste listing description, and disposed after June 8, 1989, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~K021 nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~K025 nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~K036 nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~K044 (based on reactivity).~~

~~K045 (based on reactivity).~~

~~K047 (based on reactivity).~~

~~K060 nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~K061 nonwastewaters -- high zinc subcategory (greater than or equal to fifteen percent total zinc) (based on recycling); effective August 8, 1990.~~

~~K069 noncalcium sulfate subcategory -- nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on recycling).~~

~~K100 nonwastewater forms of those wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on no generation).~~

~~2. When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern.~~

~~3. Notwithstanding the prohibitions specified in subsection 1, treatment and~~

~~disposal facilities may demonstrate (and certify pursuant to subdivision e of subsection 2 of section 33-24-05-256) compliance with the treatment standards for organic constituents specified by a footnote in table CCW in this section, provided the following conditions are satisfied:~~

~~a. The treatment standards for the organic constituents were established based on incineration in units operated in accordance with the technical requirements of sections 33-24-05-144 through 33-24-05-159, or based on combustion in fuel substitution units operating in accordance with applicable technical requirements;~~

~~b. The treatment or disposal facility has used the methods referenced in subdivision a of subsection 3 to treat the organic constituents; and~~

~~c. The treatment or disposal facility has been unable to detect the organic constituents despite using its best good faith efforts as defined by applicable department guidance or standards. Until such guidance or standards are developed, the treatment or disposal facility may demonstrate such good faith efforts by achieving detection limits for the regulated organic constituents that do not exceed an order of magnitude of the treatment standards specified in this section.~~

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-284. Variance from a treatment standard.

1. Where the treatment standard is expressed as a concentration in a waste or waste extract and a waste cannot be treated to the specified level, or where the treatment technology is not appropriate to the waste, the generator or treatment facility may petition the administrator for a variance from the treatment standard. The petitioner shall demonstrate that because the physical or chemical properties of the waste differs significantly from wastes analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods. <u>The petitioner may also demonstrate that it is treating underlying hazardous constituents in characteristically hazardous wastewaters by sending the waste to a properly designed and operated best available technology/pretreatment standards for existing sources system, which may not be achieving the treatment standards found in section 33-24-05-288.</u>

2. Each petition must be submitted in accordance with the procedures in section 33-24-01-06.

3. These petitions must include the following statement signed by the petitioner or an authorized representative: (I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.)

4. After receiving a petition for variance from a treatment standard, the administrator may request any additional information or samples which the administrator may require to evaluate the petition. Additional copies of the complete petition may be requested as needed to send to affected states and to the environmental protection agency regional offices.

5. The administrator will give public notice in the federal register of the intent to approve or deny a petition and provide an opportunity for public comment. The final decision on a variance from a treatment standard will be published in the federal register.

6. A generator, treatment facility, or disposal facility that is managing a waste covered by a variance from the treatment standards shall comply with the waste analysis requirements for restricted wastes found under section 33-24-05-256.

7. During the petition review process, an applicant is required to comply with all restrictions on land disposal under sections 33-24-05-250 through 33-24-05-300 once the effective date for the waste has been reached.

8. Where the treatment standard is expressed as a concentration in a waste or waste extract and a waste generated under conditions specific to only one site cannot be treated to the specified level, or where the treatment technology is not appropriate to the waste, the generator or treatment facility may apply to the administrator for a site-specific variance from a treatment standard. The applicant for a site-specific variance must demonstrate that because the physical or chemical properties of the waste differs significantly from the waste analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods.

9. Each application for a site-specific variance from a treatment standard must include the information in subdivisions a through d of subsection 2 of section 33-24-01-06.

10. After receiving an application for a site-specific variance from a treatment standard, the assistant administrator or a delegated representative, may request any additional information or samples which may be required to evaluate the application.

11. A generator, treatment facility, or disposal facility that is managing a waste governed by a site-specific variance from a treatment standard must comply with the waste analysis requirements for restricted wastes found under section 33-24-05-256.

12. During the application review process, the applicant for a site-specific variance must comply with all restrictions on land disposal under this chapter once the effective date for the waste has been reached.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-285. Treatment standards for hazardous debris.

1. Treatment standards. Hazardous debris must be treated prior to land disposal as follows unless the department determines under subdivision a of subsection 5 of section 33-24-02-03 that the debris is no longer contaminated with hazardous waste or the debris is treated to the waste-specific treatment standard provided for the waste contaminating the debris.

   a. General. Hazardous debris must be treated for each "contaminant subject to treatment" defined by subsection 2 using the technology or technologies identified in table 1 of this section.

   b. Characteristic debris. Hazardous debris that exhibits the characteristic of ignitability, corrosivity, or reactivity identified under sections 33-24-02-11, 33-24-02-12, and 33-24-02-13, respectively, must be deactivated by treatment using one of the technologies identified in table 1 of this section.

   c. Mixtures of debris types. The treatment standards of table 1 in this section must be achieved for each type of debris contained in a mixture of debris types. If an immobilization technology is used in a treatment train, it must be the last treatment technology used.

   d. Mixtures of contaminant types. Debris that is contaminated with two or more contaminants subject to treatment identified under subsection 2 must be treated for each contaminant using one or more treatment technologies identified in table 1 of this section. If an immobilization technology is used in a treatment train, it must be the last treatment technology used.

   e. Waste polychlorinated biphenyls. Hazardous debris that is also a waste polychlorinated biphenyls under 40 CFR part 761 is subject to the requirements of either 40 CFR part 761 or the requirements of this section, whichever are more stringent.

2. Contaminants subject to treatment. Hazardous debris must be treated for each "contaminant subject to treatment". The contaminants subject to treatment must be determined as follows:

   a. Toxicity characteristic debris. The contaminants subject to treatment for debris that exhibits the toxicity characteristic (TC) by section 33-24-02-14 are those extraction procedure constituents for which the debris exhibits the toxicity characteristic.

   b. Debris contaminated with listed waste. The contaminants subject to treatment for debris that is contaminated with a prohibited listed hazardous waste are those constituents ~~for which BDAT standards are established for the waste under sections 33-24-05-281 and 33-24-05-283.~~ or wastes for which treatment standards are established for wastes under section 33-24-05-280.

   c. Cyanide reactive debris. Hazardous debris that is reactive because of cyanide must be treated for cyanide.

3. Conditioned exclusion of treated debris. Hazardous debris that has been treated using one of the specified extraction or destruction technologies in

table 1 of this section and that does not exhibit a characteristic of hazardous waste identified under sections 33-24-02-10 through 33-24-02-14 after treatment is not a hazardous waste and need not be managed in a subtitle C facility. Hazardous debris contaminated with a listed waste that is treated by an immobilization technology specified in table 1 is a hazardous waste and must be managed in a subtitle C facility.

4. Treatment residuals.

   a. General requirements. Except as provided by subdivisions b and d of subsection 4:

      (1) Residue from the treatment of hazardous debris must be separated from the treated debris using simple physical or mechanical means; and

      (2) Residue from the treatment of hazardous debris is subject to the waste-specific treatment standards provided by sections 33-24-05-280 through 33-24-05-289 for the waste contaminating the debris.

   b. Nontoxic debris. Residue from the deactivation of ignitable, corrosive, or reactive characteristic hazardous debris (other than cyanide-reactive) that is not contaminated with a contaminant subject to treatment defined by subsection 2, must be deactivated prior to land disposal and is not subject to the waste-specific treatment standards of sections 33-24-05-280 through 33-24-05-289.

   c. Cyanide-reactive debris. Residue from the treatment of debris that is reactive because of cyanide must meet the standards for D003 under section 33-24-05-283.

   d. Ignitable nonwastewater residue. Ignitable nonwastewater residue containing equal to or greater than ten percent total organic carbon is subject to the technology-based standards for D001: "Ignitable liquids based on subdivision a of subsection 1 of section 33-24-02-11" under section 33-24-05-282.

   e. Residue from spalling. Layers of debris removed by spalling are hazardous debris that remain subject to the treatment standards of this section.

Table 1. Alternative Treatment Standards For Hazardous Debris[1]

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions[2]
A. Extraction Technologies:		
1. Physical Extraction		
a. Abrasive Blasting: Removal of contaminated debris surface layers using water and/or air pressure to propel a solid media (for example, steel shot, aluminum oxide grit, plastic beads).	Glass, Metal, Plastic, Rubber: Treatment to a clean debris surface.[3] Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Removal of at least 0.6 cm of the surface layer; treatment to a clean debris surface.[3]	All Debris: None.
b. Scarification, Grinding, and Planing: Process utilizing striking piston heads, saws, or rotating grinding wheels such that contaminated debris surface layers are removed.	Same as above	Same as above
c. Spalling: Drilling or chipping holes at appropriate locations and depth in the contaminated debris surface and applying a tool which exerts a force on the sides of those holes such that the surface layer is removed. The surface layer removed remains hazardous debris subject to the debris treatment standards.	Same as above	Same as above
d. Vibratory Finishing: Process utilizing scrubbing media, flushing fluid, and oscillating energy such that hazardous contaminants or contaminated debris surface layers are removed.[4]	Same as above	Same as above
e. High Pressure Steam and Water Sprays: Application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers.	Same as above	Same as above.
2. Chemical Extraction		

Table 1. Alternative Treatment Standards For Hazardous Debris[1]

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions[2]
a. Water Washing and Spraying: Application of water sprays or water baths of sufficient temperature, pressure, residence time, agitation, surfactants, acids, bases, and detergents to remove hazardous contaminants from debris surfaces and surface pores or to remove contaminated debris surface layers.	All Debris: Treatment to a clean debris surface[3]; Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 1.2 cm (1/2 inch) in one dimension (for example, thickness limit,[5] except that this thickness limit may be waived under an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282;[8] debris surfaces must be in contact with water solution for at least 15 minutes	Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Contaminant must be soluble to at least 5% by weight in water solution or 5% by weight in emulsion; if debris is contaminated with a dioxin-listed waste,[6] an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282 must be obtained.[8]
b. Liquid Phase Solvent Extraction: Removal of hazardous contaminants from debris surfaces and surface pores by applying a nonaqueous liquid or liquid solution which causes the hazardous contaminants to enter the liquid phase and be flushed away from the debris along with the liquid or liquid solution while using appropriate agitation, temperature, and residence time.[4]	Same as above	Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Same as above, except that contaminant must be soluble to at least 5% by weight in the solvent.
c. Vapor Phase Solvent Extraction: Application of an organic vapor using sufficient agitation, residence time, and temperature to cause hazardous contaminants on contaminated debris surfaces and surface pores to enter the vapor phase and be flushed away with the organic vapor.[4]	Same as above, except that brick, cloth, concrete, paper, pavement, rock and wood surfaces must be in contact with the organic vapor for at least 60 minutes.	Same as above.
3. Thermal Extraction a. High Temperature Metals Recovery: Application of sufficient heat, residence time, mixing, fluxing agents, and/or carbon in a smelting, melting, or refining furnace to separate metals from debris.	For refining furnaces, treated debris must be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residuals must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris.	Debris contaminated with a dioxin-listed waste:[5] Obtain an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282.[8]

Table 1. Alternative Treatment Standards For Hazardous Debris[1]

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions[2]
b. Thermal Desorption: Heating in an enclosed chamber under either oxidizing or nonoxidizing atmospheres at sufficient temperature and residence time to vaporize hazardous contaminants from contaminated surfaces and surface pores and to remove the contaminants from the heating chamber in a gaseous exhaust gas.[7]	All Debris: Obtain an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282;[8] treated debris must be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 10 cm (4 inches) in one dimension (for example, thickness limit),[5] except that this thickness limit may be waived under the "Equivalent Technology" approval	All Debris: Metals other than mercury.
B. Destruction Technologies:		
1. Biological Destruction (Biodegradation): Removal of hazardous contaminants from debris surfaces and surface pores in an aqueous solution and biodegration of organic or nonmetallic inorganic compounds (for example, inorganics that contain phosphorus, nitrogen, or sulfur) in units operated under either aerobic or anaerobic conditions.	All Debris: Obtain an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282;[8] treated debris must be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 1.2 cm (1/2 inch) in one dimension (for example, thickness limit),[5] except that this thickness limit may be waived under the "Equivalent Technology" approval	All Debris: Metal contaminants.
2. Chemical Destruction		

Table 1. Alternative Treatment Standards For Hazardous Debris[1]

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions[2]
a. Chemical Oxidation: Chemical or electolytic oxidation utilizing the following oxidation reagents (or waste reagents) or combination of reagents-(1) hypochlorite (for example, bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent destruction efficiency.[4] Chemical oxidation specifically includes what is referred to as alkaline chlorination.	All Debris: Obtain an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282;[8] treated debris must be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 1.2 cm (1/2 inch) in one dimension (for example, thickness limit),[5] except that this thickness limit may be waived under the "Equivalent Technology" approval	All Debris: Metal contaminants.
b. Chemical Reduction: Chemical reaction utilizing the following reducing reagents (or waste reagents) or combination of reagents: (1) sulfur dioxide; (2) sodium, potassium, or alkali salts of sulfites, bisulfites, and metabisulfites, and polyethylene glycols (for example, NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency.[4]	Same as above	Same as above.
3. Thermal Destruction: Treatment in an incinerator operating in accordance with sections 33-24-05-144 through 33-24-05-159 or Subpart O of 40 CFR 265; a boiler or industrial furnace operating in accordance with sections 33-24-05-~~144~~-525 through 33-24-05-~~159~~-549, or other thermal treatment unit operated in accordance with sections 33-24-05-300 through 33-24-05-399, or Subpart P, Part 265 of the 40 CFR, but excluding for purposes of these debris treatment standards Thermal Desorption units.	Treated debris must be separated from treatment residuals using simple physical or mechanical means,[9] and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris.	Brick, Concrete, Glass, Metal, Pavement, Rock, Metal: Metals other than mercury, except that there are no metal restrictions for vitrification. Debris contaminated with a dioxin-listed waste.[6] Obtain an "Equivalent Technology" approval under subsection 2 of section 33-24-05-282,[8] except that this requirement does not apply to vitrification.

Table 1. Alternative Treatment Standards For Hazardous Debris[1]

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions[2]
C. Immobilization Technologies:		
1. Macroencapsulation: Application of surface coating materials such as polymeric organics (for example, resins and plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media.	Encapsulating material must completely encapsulate debris and be resistant to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes).	None.
2. Microencapsulation: Stabilization of the debris with the following reagents (or waste reagents) such that the leachability of the hazardous contaminants is reduced: (1) Portland cement; or (2) lime/ pozzolans (for example, fly ash and cement kiln dust). Reagents (for example, iron salts, silicates, and clays) may be added to enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents.[5]	Leachability of the hazardous contaminants must be reduced.	None.
3. Sealing: Application of an appropriate material which adheres tightly to the debris surface to avoid exposure of the surface to potential leaching media. When necessary to effectively seal the surface, sealing entails pretreatment of the debris surface to remove foreign matter and to clean and roughen the surface. Sealing materials include epoxy, silicone, and urethane compounds, but paint may not be used as a sealant	Sealing must avoid exposure of the debris surface to potential leaching media and sealant must be resistant to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes).	None.

FOOTNOTE: [1]Hazardous debris must be treated by either these standards or the waste-specific treatment standards for the waste contaminating the debris. The treatment standards must be met for each type of debris contained in a mixture of debris types, unless the debris is converted into treatment residue as a result of the treatment process. Debris treatment residuals are subject to the waste-specific treatment standards for the waste contaminating the debris.

FOOTNOTE: [2]Contaminant restriction means that the technology is not BDAT for that contaminant. If debris containing a restricted contaminant is treated by the technology, the contaminant must be subsequently treated by a technology for which it is not restricted in order to be land disposed (and excluded from Article 33-24).

FOOTNOTE: [3]"Clean debris surface" means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.

FOOTNOTE: [4]Acids, solvents, and chemical reagents may react with some debris and contaminants to form hazardous compounds. For example, acid washing of cyanide-contaminated debris could result in the formation of hydrogen cyanide. Some acids may also react violently with some debris and contaminants,

depending on the concentration of the acid and the type of debris and contaminants. Debris treaters should refer to the safety precautions specified in Material Safety Data Sheets for various acids to avoid applying an incompatible acid to a particular debris/contaminant combination. For example, concentrated sulfuric acid may react violently with certain organic compounds, such as acrylonitrile.

FOOTNOTE: [5]If reducing the particle size of debris to meet the treatment standards results in material that no longer meets the 60 mm minimum particle size limit for debris, such material is subject to the waste-specific treatment standards for the waste contaminating the material, unless the debris has been cleaned and separated from contaminated soil and waste prior to size reduction. At a minimum, simple physical or mechanical means must be used to provide such cleaning and separation of nondebris materials to ensure that the debris surface is free of caked soil, waste, or other nondebris material.

FOOTNOTE: [6]Dioxin-listed wastes are hazardous waste numbers F020, F021, F022, F023, F026, and F027.

FOOTNOTE: [7]Thermal desorption is distinguished from Thermal Destruction in that the primary purpose of Thermal Desorption is to volatilize contaminants and to remove them from the treatment chamber for subsequent destruction or other treatment.

FOOTNOTE: [8]The demonstration "Equivalent Technology" under subsection 2 of section 33-24-05-282 must document that the technology treats contaminants subject to treatment to a level equivalent to that required by the performance and design and operating standards for other technologies in this table such that residual levels of hazardous contaminants will not pose a hazard to human health and the environment absent management controls.

FOOTNOTE: [9]Any soil, waste, and other nondebris material that remains on the debris surface (or remains mixed with the debris) after treatment is considered a treatment residual that must be separated from the debris using, at a minimum, simple physical or mechanical means. Examples of simple physical or mechanical means are vibratory or trommel screening or water washing. The debris surface need not be cleaned to a "clean debris surface" as defined in note 3 when separating treated debris from residue; rather, the surface must be free of caked soil, waste, or other nondebris material. Treatment residuals are subject to the waste-specific treatment standards for the waste contaminating the debris.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-286. Alternative treatment standards based on HTMR. ~~Table 1 identifies alternative treatment standards for F006 and K062 nonwastewaters.~~ For the treatment standards previously found in this section, refer to section 33-24-05-280.

~~Table 1. Alternative Treatment Standards~~

~~Waste Code~~	~~See Also~~	~~Regulated Hazardous Constituent~~	~~CAS No. for Regulated Hazardous Constituent~~	~~Nonwastewaters Concentration (mg/l) TCLP~~
~~F006~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Antimony~~	~~7440-36-0~~	~~2.1~~
		~~Arsenic~~	~~7440-38-2~~	~~0.055~~
		~~Barium~~	~~7440-39-3~~	~~7.6~~
		~~Beryllium~~	~~7440-41-7~~	~~0.014~~
		~~Cadmium~~	~~7440-43-9~~	~~0.19~~
		~~Chromium (total)~~	~~7440-47-32~~	~~0.33~~
		~~Cyanide (mg/kg) (total)~~	~~57-12-5~~	~~1.8~~
		~~Lead~~	~~7439-92-1~~	~~0.37~~
		~~Mercury~~	~~7439-97-6~~	~~0.009~~
		~~Nickel~~	~~7440-02-0~~	~~5.0~~
		~~Selenium~~	~~7782-49-2~~	~~0.16~~
		~~Silver~~	~~7440-22-4~~	~~0.30~~
		~~Thallium~~		~~0.078~~
		~~Zinc~~	~~7440-66-6~~	~~5.3~~
~~K062~~	~~Table CCWE in 33-24-05-281 and Table CCW in 33-24-05-283~~	~~Antimony~~	~~7440-36-0~~	~~2.1~~
		~~Arsenic~~	~~7440-38-2~~	~~0.055~~
		~~Barium~~	~~7440-39-3~~	~~7.6~~
		~~Beryllium~~	~~7440-41-7~~	~~0.014~~
		~~Cadmium~~	~~7440-43-9~~	~~0.19~~
		~~Chromium (total)~~	~~7440-47-32~~	~~0.33~~
		~~Lean~~	~~7439-92-1~~	~~0.37~~
		~~Mercury~~	~~7439-97-6~~	~~0.009~~
		~~Nickel~~	~~7440-02-0~~	~~5.0~~
		~~Selenium~~	~~7782-49-2~~	~~0.16~~
		~~Silver~~	~~7440-22-4~~	~~0.30~~
		~~Thallium~~		~~0.078~~
		~~Zinc~~	~~7440-66-6~~	~~5.3~~

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-287. [Reserved]

33-24-05-288. ~~[Reserved]~~ Universal treatment standards. Table universal treatment standards identifies the hazardous constituents, along with the nonwastewater and wastewater treatment standard levels, that are used to regulate most prohibited hazardous wastes with numerical limits. For determining compliance with treatment standards for underlying hazardous constituents as defined in subsection 9 of section 33-24-05-251, these treatment standards may not be exceeded. Compliance with these treatment standards is measured by an analysis of grab samples, unless otherwise noted in the following table universal treatment standards.

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
I. Organic Constituents:			
A2213[6]	0558-43-1	0.042	1.4
Acenaphthene	83-32-9	0.059	3.4
Acenaphthylene	208-96-8	0.059	3.4
Acetone	67-64-1	0.28	160
Acetonitrile	75-05-8	5.6	38
Acetophenone	96-86-2	0.010	9.7
2-Acetylaminofluorene	53-96-3	0.059	140
Acrolein	107-02-8	0.29	NA
Acrylamide	79-06-1	19	23
Acrylonitrile	107-13-1	0.24	84
Aldicarb sulfone[6]	1646-88-4	0.056	0.28
Aldrin	309-00-2	0.021	0.066
4-Aminobiphenyl	92-67-1	0.13	NA
Aniline	62-53-3	0.81	14
Anthracene	120-12-7	0.059	3.4
Aramite	140-57-8	0.36	NA
alpha-BHC	319-84-6	0.00014	0.066
beta-BHC	319-84-7	0.00014	0.066
delta-BHC	319-84-8	0.023	0.066
gamma-BHC	56-89-9	0.00014	0.066
Barban[6]	101-27-9	0.056	1.4
Bendiocarb[6]	22781-23-3	0.056	1.4
Bendiocarb phenol[6]	22961-82-6	0.056	1.4
Benomyl[6]	17804-35-2	0.056	1.4
Benz(a)anthracene	56-55-3	0.059	3.4
Benzal chloride	98-87-3	0.055	6.0
Benzene	71-43-2	0.14	10
Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
Benzo(a)pyrene	50-32-8	0.061	3.4
Bromodichloromethane	75-27-4	0.35	15
Bromomethane/Methyl bromide	74-83-9	0.11	15
4-Bromophenyl phenyl ether	101-55-3	0.055	15

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
n-Butyl alcohol	71-36-3	5.6	2.6
Butyl benzyl phthalate	85-68-7	0.017	28
Butylate[6]	2008-41-5	0.042	1.4
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	88-85-7	0.066	2.5
Carbaryl[6]	63-25-2	0.006	0.14
Carbenzadim[6]	10605-21-7	0.056	1.4
Carbofuran[6]	1563-66-2	0.006	0.14
Carbofuran phenol[6]	1563-38-8	0.056	1.4
Carbon disulfide	75-15-0	3.8	4.8 mg/l TCLP
Carbon tetrachloride	56-23-5	0.057	6.0
Carbosulfan[6]	55285-14-8	0.028	1.4
Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
p-Chloroaniline	106-47-8	0.46	16
Chlorobenzene	108-90-7	0.057	6.0
Chlorobenzilate	510-15-6	0.10	NA
2-Chloro-1,3-butadiene	126-99-8	0.057	0.28
Chlorodibromomethane	124-48-1	0.057	15
Chloroethane	75-00-3	0.27	6.0
bis(2-Chloroethoxy)methane	111-91-1	0.036	7.2
bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
2-Chloroethyl vinyl ether	110-75-8	0.062	NA
Chloroform	67-66-3	0.046	6.0
bis(2-Chloroisopropyl)ether	39638-32-9	0.055	7.2
p-Chloro-m-cresol	59-50-7	0.018	14
Chloromethane/Methyl chloride	74-87-3	0.19	30
2-Chloronaphthalene	91-58-7	0.055	5.6
2-Chlorophenol	95-57-8	0.044	5.7
3-Chloropropylene	107-05-1	0.036	30
Chrysene	218-01-9	0.059	3.4
o-Cresol	95-48-7	0.11	5.6
m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
m-Cumenyl methylcarbamate[6]	64-00-6	0.056	1.4
Cycloate[6]	1134-23-2	0.042	1.4
Cyclohexanone	108-94-1	0.36	0.75 mg/l TCLP

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
o,p'-DDD	53-19-0	0.023	0.087
p,p'-DDD	72-54-8	0.023	0.087
o,p'-DDE	3424-82-6	0.031	0.087
p,p'-DDE	72-55-9	0.031	0.087
o,p'-DDT	789-02-6	0.0039	0.087
p,p'-DDT	50-29-3	0.0039	0.087
Dibenz(a,h)anthracene	53-70-3	0.055	8.2
Dibenz(a,e)pyrene	192-65-4	0.061	NA
1,2-Dibromo-3-chloropropane	96-12-8	0.11	15
1,2-Dibromoethane/Ethylene dibromide	106-93-4	0.028	15
Dibromomethane	74-95-3	0.11	15
m-Dichlorobenzene	541-73-1	0.036	6.0
o-Dichlorobenzene	95-50-1	0.088	6.0
p-Dichlorobenzene	106-46-7	0.090	6.0
Dichlorodifluoromethane	75-71-8	0.23	7.2
1,1-Dichloroethane	75-34-3	0.059	6.0
1,2-Dichloroethane	107-06-2	0.21	6.0
1,1-Dichloroethylene	75-35-4	0.025	6.0
trans-1,2-Dichloroethylene	156-60-5	0.054	30
2,4-Dichlorophenol	120-83-2	0.044	14
2,6-Dichlorophenol	87-65-0	0.044	14
2,4-Dichlorophenoxyacetic acid/2,4-D	94-75-7	0.72	10
1,2-Dichloropropane	78-87-5	0.85	18
cis-1,3-Dichloropropylene	10061-01-5	0.036	18
trans-1,3-Dichloropropylene	10061-02-6	0.036	18
Dieldrin	60-57-1	0.017	0.13
Diethyl phthalate	84-66-2	0.20	28
Diethylene glycol, dicarbamate[6]	5952-26-1	0.056	1.4
p-Dimethylaminoazobenzene	60-11-7	0.13	NA
2-4-Dimethyl phenol	105-67-9	0.036	14
Dimethyl phthalate	131-11-3	0.047	28
Dimetilan[6]	644-64-4	0.056	1.4
Di-n-butyl phthalate	84-74-2	0.057	28
1,4-Dinitrobenzene	100-25-4	0.32	2.3
4,6-Dinitro-o-cresol	534-52.1	0.28	160
2,4-Dinitrophenol	51-28-5	0.12	160

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
2,4-Dinitrotoluene	121-14-2	0.32	140
2,6-Dinitrotoluene	606-20-2	0.55	28
Di-n-octyl phthalate	117-84-0	0.017	28
Di-n-propylnitrosamine	621-64-7	0.40	14
1,4-Dioxane	123-91-1	12.0	170
Diphenylamine (difficult to distinguish from diphenylitrosamine)	122-39-4	0.92	13
Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	13
1,2-Diphenylhydrazine	122-66-7	0.087	NA
Disulfoton	298-04-3	0.017	6.2
Dithiocarbamates (total)[6]	137-30-4	0.028	28
Endosulfan I	959-98-8	0.023	0.066
Endosulfan II	33213-65-9	0.029	0.13
Endosulfan sulfate	1031-07-8	0.029	0.13
Endrin	72-20-8	0.0028	0.13
Endrin aldehyde	7421-93-4	0.025	0.13
EPTC[6]	759-94-4	0.042	1.4
Ethyl acetate	141-78-6	0.34	33
Ethyl benzene	100-41-4	0.057	10
Ethyl cyanide/Propanenitrile	107-12-0	0.24	360
Ethyl ether	60-29-7	0.12	160
Ethyl methacrylate	97-63-2	0.14	160
Ethylene oxide	75-21-8	0.12	NA
bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
Famphur	52-85-7	0.017	15
Fluoranthene	206-44-0	0.068	3.4
Fluorene	86-73-7	0.059	3.4
Formetanate hydrochloride[6]	23422-53-9	0.056	1.4
Formparanate[6]	17702-57-7	0.056	1.4
Heptachlor	76-44-8	0.0012	0.066
Heptachlor epoxide	1024-57-3	0.016	0.066
Hexachlorobenzene	118-74-1	0.055	10
Hexachlorobutadiene	87-68-3	0.055	5.6
Hexachlorocyclopentadiene	77-47-4	0.057	2.4
Hexachloroethane	67-72-1	0.055	30
Hexachloropropylene	1888-71-7	0.035	30

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
Indeno (1,2,3-c,d) pyrene	193-39-5	0.0055	3.4
Iodomethane	74-88-4	0.19	65
Isobutyl alcohol	78-83-1	5.6	170
Isodrin	465-73-6	0.021	0.066
Isolan[6]	119-38-0	0.056	1.4
Isosafrole	120-58-1	0.081	2.6
Kepone	143-50-0	0.0011	0.13
Methacrylonitrile	126-98-7	0.24	84
Methanol	67-56-1	5.6	0.75 mg/l TCLP
Methapyrilene	91-80-5	0.081	1.5
Methiocarb[6]	2032-65-7	0.056	1.4
Methomyl[6]	16752-77-5	0.028	0.14
Methoxychlor	72-43-5	0.25	0.18
Methyl ethyl ketone	78-93-3	0.28	36
Methyl isobutyl ketone	108-10-1	0.14	33
Methyl methacrylate	80-62-6	0.14	160
Methyl methansulfonate	66-27-3	0.018	NA
Methyl parathion	298-00-0	0.014	4.6
3-Methylchlolanthrene	56-49-5	0.0055	15
4,4-Methylene bis(2-chloroaniline	101-14-4	0.50	30
Methylene chloride	75-09-2	0.089	30
Metolcarb[6]	1129-41-5	0.056	1.4
Mexacarbate[6]	315-18-4	0.056	1.4
Molinate[6]	2212-67-1	0.042	1.4
Naphthalene	91-20-3	0.059	5.6
2-Naphthylamine	91-59-8	0.52	NA
o-Nitroaniline	88-74-4	0.27	14
p-Nitroaniline	100-01-6	0.028	28
Nitrobenzene	98-95-3	0.068	14
5-Nitro-o-toluidine	99-55-8	0.32	28
o-Nitrophenol	88-75-5	0.028	13
p-Nitrophenol	100-02-7	0.12	29
N-Nitrosodiethylamine	55-18-5	0.40	28
N-Nitrosodimethylamine	62-75-9	0.40	2.3

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
N-Nit7roso-di-n-butylamine	924-16-3	0.40	17
N-Nitrosomethylethylamine	10595-95-6	0.40	2.3
N-Nitrosomorpholine	59-89-2	0.40	2.3
N-Nitrosopiperidine	100-75-4	0.013	35
N-Nitrosopyrrolidine	930-55-2	0.013	35
Oxamyl[6]	23135-22-0	0.056	0.28
Parathion	56-38-2	0.014	4.6
Total PCBs (sum of all PCB isomers, or all Aroclors)	1336-36-3	0.10	10
Pebulate[6]	1114-71-2	0.042	1.4
Pentachlorobenzene	608-93-5	0.055	10
PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
Pentachloroethane	76-01-7	0.055	6.0
Pentachloronitrobenzene	82-68-8	0.055	4.8
Pentachlorophenol	87-86-5	0.089	7.4
Phenacetin	62-44-2	0.081	16
Phenanthrene	85-01-8	0.059	5.6
Phenol	108-95-2	0.039	6.2
o-Phenylenediamine[6]	95-54-5	0.056	5.6
Phorate	298-02-2	0.021	4.6
Phthalic acid	100-21-0	0.055	28
Phthalic anhydride	85-44-9	0.055	28
Physostigmine[6]	57-47-6	0.056	1.4
Physostigmine salicylate[6]	57-64-7	0.056	1.4
Promecarb[6]	2631-37-0	0.056	1.4
Pronamide	23950-58-5	0.093	1.5
Propham[6]	122-42-9	0.056	1.4
Propoxur[6]	114-26-1	0.056	1.4
Prosulfocarb[6]	52888-80-9	0.042	1.4
Pyrene	129-00-0	0.067	8.2
Pyridine	110-86-1	0.014	16
Safrole	94-59-7	0.081	22
Silvex/2,4,5-TP	93-72-1	0.72	7.9
1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
Tetrachloroethylene	127-18-4	0.056	6.0
2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
Thiodicarb[6]	59669-26-0	0.019	1.4
Thiophanate-methyl[6]	23564-05-8	0.056	1.4
Tirpate[6]	26419-73-8	0.056	0.28
Toluene	108-88-3	0.080	10
Toxaphene	8001-35-2	0.0095	2.6
Triallate[6]	2303-17-5	0.042	1.4
Tribromomethane/Bromoform	75-25-2	0.63	15
1, 2, 4-Trichlorobenzene	120-82-1	0.055	19
1,1,1-Trichlorethane	71-55-6	0.054	6.0
1,1,2-Trichlorethane	79-00-5	0.054	6.0
Trichloroethylene	79-01-6	0.054	6.0
Trichloromonofluoromethane	75-69-4	0.020	30
2,4,5-Trichlorophenol	95-95-4	0.18	7.4
2,4,6-Trichlorophenol	88-06-2	0.035	7.4
2,4,5-Trichlorophenoxyacetic acid/2,4,5-T	93-.76-5	0.72	7.9
1,2,3-Trichloropropane	96-18-4	0.85	30
1,1,2-Trichloro-2,2,2-trifluoroethane	76-13-1	0.057	30
Triethylamine[6]	101-44-8	0.081	1.5
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.11	0.10
Vernolate[6]	1929-77-7	0.042	1.4
Vinyl chloride	75-01-4	0.27	6.0
Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
II. Inorganic Constituents:			
Antimony	7440-36-0	1.9	2.1 mg/l TCLP
Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
Barium	7440-39-3	1.2	7.6 mg/l TCLP
Beryllium	7440-41-7	0.82	0.014 mg/l TCLP
Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
Cyanides (Total) [4]	57-12-5	1.2	590

Universal Treatment Standards			
Regulated Constituent/Common Name	CAS[1]	Waastewater Standard	Nonwastewater Standard
		Concentration in mg/l[2]	Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Cyanides (Amenable) [4]	57-12-5	0.86	30
Fluoride [5]	16984-48-8	35.	NA
Lead	7439-92-1	0.69	0.37 mg/l TCLP
Mercury--Nonwastewater from Retort	7439-97-6	NA	0.20 mg/l TCLP
Mercury--All Others	7439-97-6	0.15	0.025 mg/l TCLP
Nickel	7440-02-0	3.98	5.0 mg/l TCLP
Selenium	7782-49-2	0.82	0.16 mg/l TCLP
Silver	7440-22-4	0.43	0.30 mg/l TCLP
Sulfide	18496-25-8	14.	NA
Thallium	7440-28-0	1.4	0.078 mg/l TCLP
Vanadium [4]	7440-62-2	4.3	0.23 mg/l TCLP
Zinc [5]	7440-66-6	2.61	5.3 mg/l TCLP

1 CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.

2 Concentration standards for wastewaters are expressed in mg/l and are based on analysis of composite samples.

3 Except for Metals (extraction procedure or toxicity characteristic leaching procedure) and cyanides (total and amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of sections 33-24-05-144 through 33-24-05-159, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in subsection 4 of section 33-24-05-280. All concentration standards for nonwastewaters are based on analysis of grab samples.

4 Both cyanides (total) and cyanides (amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", ~~environmental protection agency publication~~ SW-846, as incorporated by reference in section 33-24-02-05, with a sample size of 10 grams and a distillation time of one hour and fifteen minutes.

5 These constituents are not "underlying hazardous constituents" in characteristic wastes, according to the definition at subsection 9 of section 33-24-05-251.

6 Between August 26, 1996 and August 27, 1997, these constituents are not underlying hazardous constituents as defined in subsection 9 of section 33-24-05-251.

Note: NA means not applicable.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-289. [Reserved]

33-24-05-290. Prohibitions on storage of restricted wastes.

1. Except as provided in this section, the storage of hazardous wastes restricted from land disposal under sections 33-24-05-270 through 33-24-05-279 is prohibited, unless the following conditions are met:

   a. A generator stores such wastes in tanks, containers, or containment buildings onsite solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and the generator complies with the requirements in section 33-24-03-12, chapter 33-24-05, and subsection 5 of section 33-24-06-16.

   b. An owner or operator of the hazardous waste treatment, storage, or disposal facility stores such wastes in tanks containers, or containment buildings solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and:

      (1) Each container is clearly marked to identify its contents and the date each period of accumulation begins; and

      (2) Each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or such information for each tank is recorded and maintained in the operating record at that facility. Regardless of whether the tank itself is marked, an owner or operator shall comply with the operating record requirements specified in section 33-24-05-40; and

   c. A transporter stores manifested shipments of such wastes at a transfer facility for ten days or less.

2. An owner or operator of a treatment storage or disposal facility may store such wastes for up to one year unless the department can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous wastes as are necessary to facilitate proper recovery, treatment, or disposal.

3. An owner or operator of a treatment, storage or disposal facility may store such wastes beyond one year; however, the owner or operator bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous wastes as are necessary to facilitate proper recovery, treatment, or disposal.

4. If a generator's waste is exempt from a prohibition on the type of land disposal utilized for the waste (for example, because an approved case-by-case extension under section 33-24-05-254, ~~an approved 40 CFR 268.8 petition,~~ or a national capacity variance under sections 33-24-05-270 through 33-24-05-279), the prohibition in subsection 1 does not apply during the period of such exemption.

5. The prohibition in subsection 1 does not apply to hazardous wastes that meet the treatment standard specified under sections 33-24-05-281, 33-24-05-282, and 33-24-05-283 or the treatment standard specified under the variance in section 33-24-05-284, or, where treatment standards have not been specified,

is in compliance with the applicable prohibitions specified in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004.

6. Liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to fifty parts per million must be stored at a facility that meets the requirements of 40 CFR 761.65(b) and must be removed from storage and treated or disposed as required under sections 33-24-05-250 through 33-24-05-300 within one year of the date when such wastes are first placed into storage. The provisions of subsection 3 do not apply to such polychlorinated biphenyls wastes prohibited under section 33-24-05-272.

History: Effective December 1, 1988; amended effective December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-291. [Reserved]

33-24-05-292. [Reserved]

33-24-05-293. [Reserved]

33-24-05-294. [Reserved]

33-24-05-295. [Reserved]

33-24-05-296. [Reserved]

33-24-05-297. [Reserved]

33-24-05-298. [Reserved]

33-24-05-299. [Reserved]

33-24-05-300. Applicability to miscellaneous units. Sections 33-24-05-300 through 33-24-05-399 apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units, except as section 33-24-05-01 provides otherwise.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-301. Environmental performance standards. A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Permit terms and provisions must include those requirements of sections 33-24-05-89 through 33-24-05-317, sections 33-24-05-400 through 33-24-05-474, chapter 33-24-06, and 40 CFR part 146 that

are appropriate for the miscellaneous unit being permitted. Protection of human health and the environment includes, but is not limited to:

1. Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment, considering:

   a. The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;

   b. The hydrologic and geologic characteristics of the unit and the surrounding area;

   c. The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water;

   d. The quantity and direction of ground water flow;

   e. The proximity to and withdrawal rates of current and potential ground water users;

   f. The patterns of land use in the region;

   g. The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food chain crops and other vegetation;

   h. The potential for health risks caused by human exposure to waste constituents; and

   i. The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

2. Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:

   a. The volume and physical and chemical characteristics of the waste in the unit;

   b. The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;

   c. The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;

   d. The patterns of precipitation in the region;

   e. The quantity, quality, and direction of ground water flow;

   f. The proximity of the unit to surface waters;

g. The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;

h. The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;

i. The patterns of land use in the region;

j. The potential for health risks caused by human exposure to waste constituents; and

k. The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

3. Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:

a. The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols, and particulate;

b. The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;

c. The operating characteristics of the unit;

d. The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;

e. The existing quality of the air, including other sources of contamination and their cumulative impact on the air;

f. The potential for health risks caused by human exposure to waste constituents; and

g. The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-302. Monitoring, analysis, inspection, response, reporting, and corrective action. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with sections 33-24-05-06, 33-24-05-17, 33-24-05-42, 33-24-05-43, 33-24-05-44, 33-24-05-58, and 33-24-05-301 as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

History: Effective December 1, 1991; amended effective January 1, 1994.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-303. Postclosure care. A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with section 33-24-05-301 during the postclosure care period. In addition, if a treatment or storage unit has contaminated soils or ground water that cannot be completely removed or decontaminated during closure, then that unit must also meet the requirements of section 33-24-05-301 during postclosure care. The postclosure plan under section 33-24-05-67 must specify the requirements that will be used to satisfy this requirement.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-304. [Reserved]

33-24-05-305. [Reserved]

33-24-05-306. [Reserved]

33-24-05-307. [Reserved]

33-24-05-308. [Reserved]

33-24-05-309. [Reserved]

33-24-05-310. [Reserved]

33-24-05-311. [Reserved]

33-24-05-312. [Reserved]

33-24-05-313. [Reserved]

33-24-05-314. [Reserved]

33-24-05-315. [Reserved]

33-24-05-316. [Reserved]

33-24-05-317. [Reserved]

33-24-05-318. [Reserved]

33-24-05-319. [Reserved]

33-24-05-320. [Reserved]

33-24-05-321. [Reserved]

33-24-05-322. [Reserved]

33-24-05-323. [Reserved]

33-24-05-324. [Reserved]

33-24-05-325. [Reserved]

33-24-05-326. [Reserved]

33-24-05-327. [Reserved]

33-24-05-328. [Reserved]

33-24-05-329. [Reserved]

33-24-05-330. [Reserved]

33-24-05-331. [Reserved]

33-24-05-332. [Reserved]

33-24-05-333. [Reserved]

33-24-05-334. [Reserved]

33-24-05-335. [Reserved]

33-24-05-336. [Reserved]

33-24-05-337. [Reserved]

33-24-05-338. [Reserved]

33-24-05-339. [Reserved]

33-24-05-340. [Reserved]

33-24-05-341. [Reserved]

33-24-05-342. [Reserved]

33-24-05-343. [Reserved]

33-24-05-344. [Reserved]

33-24-05-345. [Reserved]

33-24-05-346. [Reserved]

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33-24-05-348. [Reserved]

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33-24-05-356. [Reserved]

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33-24-05-358. [Reserved]

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33-24-05-361. [Reserved]

33-24-05-362. [Reserved]

33-24-05-363. [Reserved]

33-24-05-364. [Reserved]

33-24-05-365. [Reserved]

33-24-05-366. [Reserved]

33-24-05-367. [Reserved]

33-24-05-368. [Reserved]

33-24-05-369. [Reserved]

33-24-05-370. [Reserved]

33-24-05-371. [Reserved]

33-24-05-372. [Reserved]

33-24-05-373. [Reserved]

33-24-05-374. [Reserved]

33-24-05-375. [Reserved]

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33-24-05-388. [Reserved]

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33-24-05-390. [Reserved]

33-24-05-391. [Reserved]

33-24-05-392. [Reserved]

33-24-05-393. [Reserved]

33-24-05-394. [Reserved]

33-24-05-395. [Reserved]

33-24-05-396. [Reserved]

33-24-05-397. [Reserved]

33-24-05-398. [Reserved]

33-24-05-399. [Reserved]

33-24-05-400. Applicability to air emission standards for process vents.

1. The regulations of sections 33-24-05-400 through 33-24-05-419 apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in section 33-24-05-01).

2. Except for subsections 4 and 5 of section 33-24-05-404, sections 33-24-05-400 through 33-24-05-419 apply to process vents associated with distillation,

fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least ten parts per million weight, if these operations are conducted in one of the following:

a. ~~Units that are~~ A unit that is subject to the permitting requirements of chapter 33-24-06; or

b. ~~Hazardous waste recycling units that are located on hazardous waste management facilities otherwise subject to the permitting requirements of section 33-24-05-06.~~ A unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of subsection 1 of section 33-24-03-12 (for example, a hazardous waste recycling unit that is not a ninety-day tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of chapter 33-24-06, or

c. A unit (including a hazardous waste recycling unit) that is exempt from permitting under the provisions of subsection 1 of section 33-24-03-12 (for example, a ninety-day tank or container).

3. If the owner or operator of process vents subject to the requirements of sections 33-24-05-402 through 33-24-05-406 has received a permit under chapter 33-24-06 prior to December 21, 1990, the requirements of sections 33-24-05-402 through 33-24-05-406 must be incorporated when the permit is reissued under section 33-4-05-11 or reviewed under section 33-24-06-06. [Note: The requirements of sections 33-24-05-402 through 33-24-05-406 apply to process vents on hazardous waste recycling units previously exempt under subdivision a of subsection 3 of section 33-24-02-06. Other exemptions under sections 33-24-02-04, 33-24-03-12, and subsection 7 of section 33-24-05-01 are not affected by these requirements.]

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-401. Definitions. As used in sections 33-24-05-400 through 33-24-05-419, all terms not defined herein have the meaning given in chapter 23-20.3 and chapters 33-24-01 through 33-24-05.

1. "Air stripping operation" is a desorption operation employed to transfer one or more volatile components from a liquid mixture into a gas (air) either with or without the application of heat to the liquid. Pack towers, spray towers, and bubble-cap, sieve, or valve-type plate towers are among the process configurations used for contacting the air and a liquid.

2. "Bottoms receiver" means a container or tank used to receive and collect the heavier bottoms fractions of the distillation feedstream that remain in the liquid phase.

3. "Closed-vent system" means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a

control device.

4. "Condenser" means a heat-transfer device that reduces a thermodynamic fluid from its vapor phase to its liquid phase.

5. "Connector" means flange, screwed, welded, or other joined fittings used to connect two pipelines or a pipeline and a piece of equipment. For the purposes of reporting and recordkeeping, "connector" means flanged fittings that are not covered by insulation or other materials that prevent location of the fittings.

6. "Continuous recorder" means a data-recording device recording an instantaneous data value at least once every fifteen minutes.

7. "Control device" means an enclosed combustion device vapor recovery system, or flare. Any device the primary function of which is the recovery or capture of solvent or other organic for use, reuse, or sale (for example, a primary condenser on a solvent recovery unit) is not a control device.

8. "Control device shutdown" means the cessation of operation of a control device for any purpose.

9. "Distillate receiver" means a container or tank used to receive and collect liquid material (condensed) from the overhead condenser of a distillation unit and from which the condensed liquid is pumped to larger storage tanks or other process units.

10. "Distillation operation" means an operation, either batch or continuous separating one or more feedstreams into two or more exit streams, each exit stream having component concentrations different from those in the feedstreams. The separation is achieved by the redistribution of the components between the liquid and vapor phase as they approach equilibrium within the distillation unit.

11. "Double-block and bleed system" means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

12. "Equipment" means each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, or flange, and any control devices or systems required by sections 33-24-05-400 through 33-24-05-419.

13. "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.

14. "Flame zone" means the portion of the combustion chamber in a boiler occupied by the flame envelope.

15. "Flow indicator" means a device that indicates whether gas flow is present in a vent stream.

16. "Fractionation operation" means a distillation operation or method used to

separate a mixture of several volatile components of different boiling points in successive stages, each stage removing from the mixture some proportion of one of the components.

17. "Hazardous waste management unit shutdown" means a work practice or operational procedure that stops operation of a hazardous waste management unit or part of a hazardous waste management unit. An unscheduled work practice or operational procedure that stops operation of a hazardous waste management unit or part of a hazardous waste management unit for less than twenty-four hours is not a hazardous waste management unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping operation are not hazardous waste management unit shutdowns.

18. "Hot well" means a container for collecting condensate as in a steam condenser serving a vacuum-jet or steam-jet ejector.

19. "In gas or vapor service" means that the piece of equipment contains or contacts a hazardous waste stream that is in the gaseous state at operating conditions.

20. "In heavy liquid service" means that the piece of equipment is not in gas or vapor service or in light liquid service.

21. "In light liquid service" means that the piece of equipment contains or contacts a waste stream where the vapor pressure of one or more of the components in the stream is greater than three-tenths kilopascals at twenty degrees Centigrade, the total concentration, the total concentration of the purest components having a vapor pressure greater than three-tenths kilopascals at twenty degrees Centigrade is equal to or greater than twenty percent by weight, and the fluid is a liquid at operating conditions.

22. "In situ sampling systems" means nonextracted samplers or inline samplers.

23. "In vacuum service" means that equipment is operating at an internal pressure that is at least five kilopascals below ambient pressure.

24. "Malfunction" means any sudden failure of a control device or a hazardous waste management unit or failure of a hazardous waste management unit to operate in a normal or usual manner, so that organic emissions are increased.

25. "Open-ended valve or line" means any valve, except pressure release valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

26. "Pressure release" means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure release device.

27. "Process heater" means a device that transfers heat liberated by burning fuel to fluids contained in tubes, including all fluids except water that are heated to produce steam.

28. "Process vent" means any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank (for example, distillate receiver, condenser, bottoms receiver, surge

control tank, separator tank, or hot well) associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations.

29. "Repaired" means that equipment is adjusted, or otherwise altered, to eliminate a leak.

30. "Sensor" means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.

31. "Separator tank" means a device used for separation of two immiscible liquids.

32. "Solvent extraction operation" means an operation or method of separation in which a solid or solution is contacted with a liquid solvent (the two being mutually insoluble) to preferentially dissolve and transfer one or more components into the solvent.

33. "Start-up" means the setting in operation of a hazardous waste management unit or control device for any purpose.

34. "Steam stripping operation" means a distillation operation in which vaporization of the volatile constituents of a liquid mixture takes place by the introduction of steam directly into the charge.

35. "Surge control tank" means a large sized pipe or storage reservoir sufficient to contain the surging liquid discharge of the process tank to which it is connected.

36. "Thin-film evaporation operation" means a distillation operation that employs a heating surface consisting of a large diameter tube that may be either straight or tapered, horizontal or vertical. Liquid is spread on the tube wall by a rotating assembly of blades that maintain a close clearance from the wall or actually ride on the film of liquid on the wall.

37. "Vapor incinerator" means any enclosed combustion device that is used for destroying organic compounds and does not extract energy in the form of steam or process heat.

38. "Vented" means discharged through an opening, typically an open-ended pipe or stack, allowing the passage of a stream of liquids, gases, or fumes into the atmosphere. The passage of liquids, gases, or fumes is caused by mechanical means such as compressors or vacuum-producing systems or by process-related means such as evaporation produced by heating and not caused by tank loading and unloading (working losses) or by natural means such as diurnal temperature changes.

History: Effective December 1, 1991; amended effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-402. Standards - Process vents.

1. The owner or operator of a facility with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations managing hazardous wastes with organic concentrations of at least ten parts per million weight shall either:

   a. Reduce total organic emissions from all affected process vents at the facility below one and four-tenths kilograms/hour (three pounds/hour) and two and eight-tenths megagrams/year (three and one-tenth tons/year), or

   b. Reduce, by use of a control device, total organic emissions from all affected process vents at the facility by ninety-five weight percent.

2. If the owner or operator installs a closed-vent system and control device to comply with the provisions of subdivision 1, the closed-vent system and control device must meet the requirements of section 33-24-05-403.

3. Determinations of vent emissions and emission reductions or total organic compound concentrations achieved by add-on control devices may be based on engineering calculations or performance tests. If performance tests are used to determine vent emissions, emission reductions, or total organic compound concentrations achieved by add-on control devices, the performance tests must conform with the requirements of subsection 3 of section 33-24-05-404.

4. When an owner or operator and the department do not agree on determinations of vent emissions or emission reductions, or both, or total organic compound concentrations achieved by add-on control devices based on engineering calculations, the procedures in subsection 3 of section 33-24-05-404 must be used to resolve the disagreement.

History: Effective December 1, 1991; amended effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-403. Standards - Closed-vent systems and control devices.

1. Requirements for owners or operators of closed-vent systems and control devices.

   a. Owners or operators of closed-vent systems and control devices used to comply with provisions of sections 33-24-05-400 through 33-24-05-449 shall comply with the provisions of this section.

   b. The owner or operator of an existing facility who cannot install a closed-vent system and control device to comply with the provisions of sections 33-24-05-400 through 33-24-05-449 on the effective date that the facility becomes subject to the provisions of sections 33-24-05-400 through 33-24-05-449 must prepare an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The controls must be installed as soon as possible, but the implementation schedule may allow up to ~~eighteen~~ thirty months after the effective date that the facility becomes subject to sections 33-24-05-400 through 33-24-05-429 for installation and start-up. All units that began operation after December 21, 1990, must comply

with the rules immediately (~~i.e.,~~ for example, must have control devices installed and operating on start-up of the effective unit); the two-year implementation schedule does not apply to these units.

2. A control device involving vapor recovery (~~e.g.,~~ for example, a condenser or absorber) must be designed and operated to recover the organic vapors vented to it with an efficiency of ninety-five weight percent or greater unless the total organic emission limits of subdivision a of subsection 1 of section 33-24-05-402 for all affected process vents can be attained at an efficiency less than ninety-five weight percent.

3. An enclosed combustion device (~~e.g.,~~ for example, a vapor incinerator, boiler, or process heater) must be designed and operated to reduce the organic emissions vented to it by ninety-five weight percent or greater; to achieve a total organic compound concentration of twenty parts per million volume, expressed as the sum of the actual compounds, not carbon equivalents, on a dry basis corrected to three percent oxygen; or to provide a minimum residence time of fifty hundredths seconds at a minimum temperature of seven hundred sixty degrees Centigrade. If a boiler or process heater is used as the control device, then the vent stream must be introduced into the flame zone of the boiler or process heater.

4. Flares.

   a. A flare must be designed for and operated with no visible emissions as determined by the methods specified in subdivision a of subsection 5, except for periods not to exceed a total of five minutes during any two consecutive hours.

   b. A flare must be operated with a flame present at all times, as determined by the methods specified in paragraph 3 of subdivision b of subsection 6.

   c. A flare must be used only if the net heating value of the gas being combusted is eleven and two-tenths mega joules per standard cubic meter at standard conditions (three hundred British thermal units per standard cubic foot at standard conditions) or greater if the flare is steam-assisted or air-assisted; or if the net heating value of the gas being combusted is seven and forty-five hundredths mega joules per cubic meter at standard conditions (two hundred British thermal units per standard cubic foot at standard conditions) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in subdivision b of subsection 5.

   d. Steam-assisted or nonassisted flare.

      (1) A steam-assisted or nonassisted flare must be designed for and operated with an exit velocity, as determined by the methods specified in subdivision c of subsection 5, less than eighteen and three-tenths meters per second [sixty feet per second], except as provided in paragraphs 2 and 3 of subdivision d of subsection 4.

      (2) A steam-assisted or nonassisted flare designed for and operated with an exit velocity, as determined by the methods specified in subdivision c of subsection 5, equal to or greater than eighteen and

three-tenths meters per second [sixty feet per second] but less than one hundred twenty-two meters per second [four hundred feet per second] is allowed if the net heating value of the gas being combusted is greater than thirty seven and three-tenths mega joules per standard cubic meter at standard conditions [one thousand British thermal units per standard cubic foot at standard conditions].

(3) A steam-assisted or nonassisted flare designed for and operated with an exit velocity, as determined by the methods specified in subdivision c of subsection 5, less than the velocity V_{max} as determined by the method specified in subdivision d of subsection 5 and less than one hundred twenty-two meters per second [four hundred feet per second] is allowed.

e. An air-assisted flare must be designed and operated with an exit velocity less than the velocity, V_{max} as determined by the method specified in subdivision e of subsection 5.

f. A flare used to comply with this section must be steam-assisted, air-assisted, or nonassisted.

5. Methods.

a. Referenced method 22 in 40 CFR part 60 must be used to determine the compliance of a flare with the visible emissions provisions of sections 33-24-05-400 through 33-24-05-429. The observation period is two hours and must be used according to method 22.

b. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \left| \sum_{i=1}^{n} C_i H_i \right|$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to 1 mol is 20 °C;

K = Constant, 1.74×10^{-7} (1/ppm) (g mol/scm) (MJ/kcal) where standard temperature for (g mol/scm) is 20 °C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by reference method 18 in 40 CFR part 60 and measured for hydrogen and carbon monoxide by ASTM D 1946-82, as incorporated by reference as specified in section 33-24-01-05; and

H_i = Net heat of combustion of sample component i, kcal/g mol at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM

D 2382-83, as incorporated by reference as specified in section 33-24-01-05, if published values are not available or cannot be calculated.

c. The actual exit velocity of a flare must be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by reference methods 2, 2a, 2c, or 2d in 40 CFR part 60 as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

d. The maximum allowed velocity in m/s V_{max} for a flare complying with paragraph 3 of subdivision d of subsection 4 must be determined by the following equation:

$$\log_{10}(V_{max}) = (H_T + 28.8)/31.7$$

where:

28.8 = constant,

31.7 = constant, and

H_T = the net heating value as determined in subdivision b of subsection 5.

e. The maximum allowed velocity in m/s V_{max} for an air-assisted flare must be determined by the following equation:

$$V_{max} = 8.706 + 0.7084\ (H_T)$$

where:

8.706 = constant,

0.7084 = constant, and

H_T = the net heating value as determined in subdivision b of subsection 5.

6. The owner or operator shall monitor and inspect each control device required to comply with this section to ensure proper operation and maintenance of the control device by implementing the following requirements:

a. Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow from each affected process vent to the control device at least once every hour. The flow indicator sensor must be installed in the vent stream at the nearest feasible point to the control device inlet but before the point at which the vent streams are combined.

b. Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor control device operation as specified below:

(1) For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of plus or minus one percent of the temperature being monitored in Centigrade or plus or minus five-tenths degrees Centigrade, whichever is greater. The temperature sensor shall be installed at a location in the combustion chamber downstream of the combustion zone.

(2) For a catalytic vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature at two locations and have an accuracy of plus or minus one percent of the temperature being monitored in degrees Centigrade or plus or minus five-tenths degrees Centigrade, whichever is greater. One temperature sensor must be installed in the vent stream at the nearest feasible point to the catalyst bed inlet and a second temperature sensor must be installed in the vent stream at the nearest feasible point to the catalyst bed outlet.

(3) For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame.

(4) A boiler or process heater having a design heat input capacity less than forty-four megawatts a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of plus or minus one percent of the temperature being monitored in degrees Centigrade or plus or minus five-tenths degrees Centigrade, whichever is greater. The temperature sensor must be installed at a location in the furnace downstream of the combustion zone.

(5) For a boiler or process heater having a design heat input capacity greater than or equal to forty-four megawatts a monitoring device equipped with a continuous recorder to measure a parameter that indicates good combustion operating practices are being used.

(6) For a condenser, either:

(a) A monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the condenser; or

(b) A temperature monitoring device equipped with a continuous recorder. The device must be capable of monitoring temperature ~~at two locations and have~~ with an accuracy of plus or minus one percent of the temperature being monitored in degrees ~~Centigrade~~ Celsius or plus or minus five-tenths degrees ~~Centigrade~~ Celsius, whichever is greater. ~~One~~ The temperature sensor ~~must~~ shall be installed at a location in the exhaust vent stream from the condenser~~, and a second temperature sensor must be installed at a location in the coolant fluid exiting the condenser.~~ exit (for example, product side).

(7) For a carbon adsorption system that regenerates the carbon bed

directly in the control device such as a fixed-bed carbon adsorber either:

(a) A monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the carbon bed, or

(b) A monitoring device equipped with a continuous recorder to measure a parameter that indicates the carbon bed is regenerated in a regular predetermined time cycle.

c. Inspect the readings from each monitoring device required by subdivisions a and b at least once each operating day to check control device operation and, if necessary, immediately implement the corrective measures necessary to ensure the control device operates in compliance with the requirements.

7. An owner or operator using a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly onsite in the control device shall replace the existing carbon in the control device with fresh carbon at a regular predetermined time interval that is no longer than the carbon service life established as a requirement of subparagraph f of paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405.

8. An owner or operator using a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device shall replace the existing carbon in the control device with fresh carbon on a regular basis by using one of the following procedures:

a. Monitor the concentration level of organic compounds in the exhaust vent stream from the carbon adsorption system on a regular schedule, and replace the existing carbon with fresh carbon immediately when carbon breakthrough is indicated. The monitoring frequency must be daily or at an interval no greater than twenty percent of the time required to consume the total carbon working capacity established as a requirement of subparagraph g of paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405, whichever is longer.

b. Replace the existing carbon with fresh carbon at a regular, predetermined time interval that is less than the design carbon replacement interval established as a requirement of subparagraph g of paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405.

9. An alternative operational or process parameter may be monitored if it can be demonstrated that another parameter will ensure that the control device is operated in conformance with these standards and the control devices design specifications.

10. An owner or operator of an affected facility seeking to comply with the provisions of sections 33-24-05-400 through 33-24-05-449 by using a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system is required to develop documentation including sufficient information to describe

the control device operation and identify the process parameter or parameters that indicate proper operation and maintenance of the control device.

11. ~~Closed-vent systems.~~ A closed-vent system shall meet either of the following design requirements:

    a. ~~Closed-vent systems must be designed for and operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background and by visual inspection, as determined by the methods specified in subsection 2 of section 33-24-05-404.~~ A closed-vent system shall be designed to operate with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million volume above background as determined by the procedure in subsection 2 of section 33-24-05-404, and by visual inspections; or

    b. ~~Closed-vent systems must be monitored to determine compliance with this section during the initial leak detection monitoring, which must be conducted by the date that the facility becomes subject to the provisions of this section, annually, and at other times as requested by the department.~~ A closed-vent system shall be designed to operate at a pressure below atmospheric pressure. The system shall be equipped with at least one pressure gauge or other pressure measurement device that can be read from a readily accessible location to verify that negative pressure is being maintained in the closed-vent system when the control device is operating.

    c. Detectable emissions, as indicated by an instrument reading greater than five hundred parts per million and visual inspections, must be controlled as soon as practicable, but not later than fifteen calendar days after the emission is detected.

    d. A first attempt at repair must be made no later than five calendar days after the emission is detected.

12. The owner or operator shall monitor and inspect each closed-vent system required to comply with section 33-24-05-403 to ensure proper operation and maintenance of the closed-vent system by implementing the following requirements:

    a. Each closed-vent system that is used to comply with subdivision a of subsection 11 shall be inspected and monitored in accordance with the following requirements:

        (1) An initial leak detection monitoring of the closed-vent system shall be conducted by the owner or operator on or before the date that the system becomes subject to this section. The owner or operator shall monitor the closed-vent system components and connections using the procedures specified in subsection 2 of section 33-24-05-404 to demonstrate that the closed-vent system operates with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million volume above background.

        (2) After initial leak detection monitoring required in paragraph 1, the owner or operator shall inspect and monitor the closed-vent system

as follows:

(a) Closed-vent system joints, seams, or other connections that are permanently or semipermanently sealed (for example, a welded joint between two sections of hard piping or a bolted and gasketed ducting flange) shall be visually inspected at least once per year to check for defects that could result in air pollutant emissions. The owner or operator shall monitor a component or connection using the procedures specified in subsection 2 of section 33-24-05-404 to demonstrate that it operates with no detectable emissions following any time the component is repaired or replaced (for example, a section of damaged hard piping is replaced with new hard piping) or the connection is unsealed (for example, a flange is unbolted).

(b) Closed-vent system components or connections other than those specified in subparagraph a shall be monitored annually and at other times as requested by the department, except as provided for in subsection 15, using the procedures specified in subsection 2 of section 33-24-05-404 to demonstrate that the components or connections operate with no detectable emissions.

(3) In the event that a defect or leak is detected, the owner or operator shall repair the defect or leak in accordance with the requirements of subdivision c.

(4) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in section 33-24-05-405.

b. Each closed-vent system that is used to comply with subdivision b of subsection 11 shall be inspected and monitored in accordance with the following requirements:

(1) The closed-vent system shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork or piping or loose connections.

(2) The owner or operator shall perform an initial inspection of the closed-vent system on or before the date that the system becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year.

(3) In the event that a defect or leak is detected, the owner or operator shall repair the defect in accordance with the requirements of subdivision c.

(4) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in section 33-24-05-405.

c. The owner or operator shall repair all detected defects as follows:

(1) Detectable emissions, as indicated by visual inspection, or by an instrument reading greater than five hundred parts per million volume above background, shall be controlled as soon as practicable, but not later than fifteen calendar days after the emission is detected, except as provided for in paragraph 3.

(2) A first attempt at repair shall be made no later than five calendar days after the emission is detected.

(3) Delay of repair of a closed-vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown, or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next process unit shutdown.

(4) The owner or operator shall maintain a record of the defect repair in accordance with the requirements specified in section 33-24-05-405.

~~12~~ 13. Closed-vent systems and control devices used to comply with provisions of sections 33-24-05-400 through 33-24-05-429 must be operated at all times when emissions may be vented to them.

14. The owner or operator using a carbon adsorption system to control air pollutant emissions shall document that all carbon that is a hazardous waste and that is removed from the control device is managed in one of the following manners, regardless of the average volatile organic concentration of the carbon:

a. Regenerated or reactivated in a thermal treatment unit that meets one of the following:

(1) The owner or operator of the unit has been issued a final permit under chapter 33-24-06 which implements the requirements of sections 33-24-05-300 through 33-24-05-303; or

(2) The unit is equipped with and operating air emission controls in accordance with the applicable requirements of sections 33-24-05-400 through 33-24-05-419 and sections 33-24-05-450 through 33-24-05-474 or the requirements of subsection 5 of section 33-24-06-16; or

(3) The unit is equipped with and operating air emission controls in accordance with a national emission standard for hazardous air pollutants under 40 CFR part 61 or 40 CFR part 63.

b. Incinerated in a hazardous waste incinerator for which the owner or operator either:

(1) Has been issued a final permit under chapter 33-24-06 which implements the requirements of sections 33-24-05-144 through 33-24-05-159; or

(2) Has designed and operates the incinerator in accordance with the interim status requirements of subsection 5 of section 33-24-06-16.

c. Burned in a boiler or industrial furnace for which the owner or operator either:

(1) Has been issued a final permit under chapter 33-24-06 which implements the requirements of sections 33-24-05-525 through 33-24-05-549; or

(2) Has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of subsection 5 of section 33-24-06-16.

15. Any components of a closed-vent system that are designated, as described in subdivision i of subsection 3 of section 33-24-05-405, as unsafe to monitor are exempt from the requirements of subparagraph b of paragraph 2 of subdivision a of subsection 12 if:

a. The owner or operator of the closed-vent system determines that the components of the closed-vent system are unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with subparagraph b of paragraph 2 of subdivision a of subsection 12; and

b. The owner or operator of the closed-vent system adheres to a written plan that requires monitoring the closed-vent system components using the procedure specified in subparagraph b of paragraph 2 of subdivision a of subsection 12 as frequently as practicable during safe-to-monitor times.

History: Effective December 1, 1991; amended effective January 1, 1994n; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-404. Test methods and procedures.

1. Each owner or operator subject to the provisions of sections 33-24-05-400 through 33-24-05-429 shall comply with the test methods and procedures requirements provided in this section.

2. When a closed-vent system is tested for compliance with no detectable emissions, as required in subsection ~~11~~ 12 of section 33-24-05-403, the test must comply with the following requirements:

a. Monitoring must comply with referenced method 21 in 40 CFR part 60.

b. The detection instrument must meet the performance criteria of reference method 21.

c. The instrument must be calibrated before use on each day of its use by the procedures specified in reference method 21.

d. Calibration gases must be:

(1) Zero air (less than ten parts per million hydrocarbon in air).

(2) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand parts per million methane or n-hexane.

e. The background level must be determined as set forth in reference method 21.

f. The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

g. The arithmetic difference between the maximum concentration indicated by the instrument and background level is compared with five hundred parts per million for determining compliance.

3. Performance tests to determine compliance with subsection 1 of section 33-24-05-402 and with the total organic compound concentration limit of subsection 3 of section 33-24-05-403 must comply with the following:

a. Performance tests to determine total organic compound concentrations and mass flow rates entering and exiting control devices must be conducted and data reduced in accordance with the following reference methods and calibration procedures:

(1) Method 2 in 40 CFR part 60 for velocity and volume flow rate.

(2) Method 18 in 40 CFR part 60 for organic content.

(3) Each performance test must consist of three separate runs; each run conducted for at least one hour under the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. For the purpose of determining total organic compound concentrations and mass flow rates, the average of results of all runs apply. The average must be computed on a time-weighted basis.

(4) Total organic mass flow rates must be determined by the following equation:

$$E_h = Q_{2sd} \left[\sum_{i=1}^{n} C_i MW_i \right] [0.0416] [10^{-6}]$$

where:

E_h = Total organic mass flow rate, kg/h;

Q_{sd} = Volumetric flow rate of gases entering or exiting control device, as determined by method 2, dscm/h;

n = Number of organic compounds in the vent gas;

C_i = Organic concentration in ppm, dry basis, of compound i in the vent gas, as determined by method 18;

Mw_i = Molecular weight of organic compound i in the vent gas, kg/kg-mol;

0.0416 = Conversion factor for molar volume, kg-mol/m^3[@293 k and 760 mm Hg];

10^{-6} = Conversion from ppm, ppm^{-1}.

(5) The annual total organic emission rate must be determined by the following equation:

$$E_A = [E_h][H]$$

where:

E_A = Total organic mass emission rate, kg/y;

E_h = Total organic mass flow rate for the process vent, kg/h;

H = Total annual hours of operations for the affected unit, h.

(6) Total organic emissions from all affected process vents at the facility must be determined by summing the hourly total organic mass emission rates (E_h as determined in paragraph 4 of subdivision a of subsection 3) and by summing the annual total organic mass emission rates (E_A, as determined in paragraph 5 of subdivision a of subsection 3 for all affected process vents at the facility.

b. The owner or operator shall record such process information as may be necessary to determine the conditions of the performance test. Operations during periods of startup, shutdown, and malfunction do not constitute representative conditions for the purpose of a performance test.

c. The owner or operator of an affected facility shall provide or cause to be provided, performance testing facilities as follows:

(1) Sampling ports adequate for the test methods specified in subdivision a of subsection 3.

(2) Safe sampling platforms.

(3) Safe access to sampling platforms.

(4) Utilities for sampling and testing equipment.

d. For the purpose of making compliance determinations, the time-weighted

average of the results of the three runs applies. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of force shutdown, failure of an irreplacable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner's or operator's control, compliance may, upon the department's approval, be determined using the average of the results of the two other runs.

4. To show that a process vent associated with a hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation is not subject to the requirements of sections 33-24-05-400 through 33-24-05-419, the owner or operator must make an initial determination that the time-weighted, annual average total organic concentration of the waste managed by the waste management unit is less than ten parts per million weight using one of the following two methods:

   a. Direct measurement of the organic concentration of the waste using the following procedures:

      (1) The owner or operator must take a minimum of four grab samples of waste for each waste stream managed in the effected unit under process conditions expected to cause the maximum waste organic concentration.

      (2) For waste generated onsite, the grab samples must be collected at a point before the waste is exposed to the atmosphere such as in an enclosed pipe or other closed system that is used to transfer the waste after generation to the first affected distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation. For waste generated offsite, the grab samples must be collected at the inlet to the first waste management unit that receives the waste provided the waste has been transferred to the facility in a closed system such as a tank truck and the waste is not diluted or mixed with other waste.

      (3) Each sample must be analyzed and the total organic concentration of the sample must be computed using method 9060 or 8240 of SW-846, as incorporated by reference under section 33-24-01-05.

      (4) The arithmetic mean of the results of the analysis of the four samples applies for each waste stream managed in the unit in determining the time-weighted annual average total organic concentration of the waste. The time-weighted average is to be calculated using the annual quantity of each waste stream processed and the mean organic concentration of each waste stream managed in the unit.

   b. Using knowledge of the waste to determine that its total organic concentration is less than ten parts per million weight. Documentation of the waste determination is required. Examples of documentation that must be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has

previously been demonstrated by direct measurement to generate a waste stream having a total organic content less than ten parts per million weight, or prior speciation analysis results on the same waste stream where it can also be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.

5. The determination that distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations manage hazardous wastes with time-weighted, annual average total organic concentrations less than ten parts per million weight must be made as follows:

   a. By the effective date that the facility becomes subject to the provisions of sections 33-24-05-400 through 33-24-05-419 or by the date when the waste is first managed in a waste management unit, whichever is later; and

   b. For continuously generated waste, annually, or

   c. When there is a change in the waste being managed or a change in the process that generates or treats the waste.

6. When an owner or operator and the department do not agree on whether a distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation manages a hazardous waste with organic concentrations of at least ten parts per million weight based on knowledge of the waste, the procedures in method 8240 may be used to resolve the dispute.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-405. Recordkeeping requirements.

1. Applicability.

   a. Each owner or operator subject to the provisions of sections 33-24-05-400 through 33-24-05-419 shall comply with the recordkeeping requirements of this section.

   b. An owner or operator of more than one hazardous waste management unit subject to the provisions of sections 33-24-05-400 through 33-24-05-419 may comply with the recordkeeping requirements for these hazardous waste management units in one recordkeeping system if the system identifies each record by each hazardous waste management unit.

2. Owners and operators must record the following information in the facility operating record:

   a. For facilities that comply with the provisions of subdivision b of subsection 1 of section 33-24-05-403, an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The schedule must also include a

rationale of why the installation cannot be completed at an earlier date. The implementation schedule must be in the facility operating record by the effective date that the facility becomes subject to the provisions of sections 33-24-05-400 through 33-24-05-419.

b. Up-to-date documentation of compliance with the process vent standards in section 33-24-05-402, including:

(1) Information and data identifying all affected process vents, annual throughput and operating hours of each affected unit, estimated emission rates for each affected vent, and for the overall facility, ~~i.e.,~~ namely, the total emissions for all affected vents at the facility, and the approximate location within the facility of each affected unit, ~~e.g.,~~ for example, identify the hazardous waste management units on a facility plot plan.

(2) Information and data supporting determinations of vent emissions and emission reductions achieved by add-on control devices based on engineering calculation or source tests. For the purpose of determining compliance, determinations of vent emissions and emission reductions must be made using operating parameter values, ~~e.g.,~~ for example, temperatures, flow rates, or vent stream organic compounds and concentrations, that represent the conditions that result in maximum organic emissions, such as when the waste management unit is operating at the highest load or capacity level reasonably expected to occur. If the owner or operator takes any action, ~~e.g.,~~ for example, managing a waste of different composition or increasing operating hours of affected waste management units, that would result in an increase in total organic emissions from affected process vents at the facility, then a new determination is required.

c. Where an owner or an operator chooses to use test data to determine the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan. The test plan must include:

(1) A description of how it is determined that the planned test is going to be conducted when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. This must include the estimated or design flow rate and organic content of each vent stream and define the acceptable operating ranges of key process and control device parameters during the test program.

(2) A detailed engineering description of the closed-vent system and control device including:

(a) Manufacturer's name and model number of control device.

(b) Type of control device.

(c) Dimensions of the control device.

(d) Capacity.

(e) Construction materials.

(3) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

d. Documentation of compliance with section 33-24-05-403 must include the following information:

(1) A list of all information references and sources used in preparing the documentation.

(2) Records, including the dates, of each compliance test required by subsection 11 of section 33-24-05-403.

(3) If engineering calculations are used, a design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of "Apti course 415: control of gaseous emissions", as incorporated by reference as specified in section 33-24-01-05, or other engineering texts acceptable to the department that present basic control device design information. Documentation provided by the control device manufacturer or vendor that describes the control device design in accordance with subparagraphs a through g of paragraph 3 of subdivision d of subsection 2 must be used to comply with this requirement. The design analysis must address the vent stream characteristics and control device operation parameters as specified below.

(a) For a thermal vapor incinerator, the design analysis must consider the vent stream composition, constituent concentrations, and flow rate. The design analysis must also establish the design minimum and average temperature in the combustion zone and the combustion zone residence time.

(b) For a catalytic vapor incinerator, the design analysis must consider the vent stream composition, constituent concentrations, and flow rate. The design analysis must also establish the design minimum and average temperatures across the catalyst bed inlet and outlet.

(c) For a boiler or process heater, the design analysis must consider the vent stream composition, constituent concentrations, and flow rate. The design analysis must also establish the design minimum and average flame zone temperatures, combustion zone residence time, and description of methods and location where the vent stream is introduced into the combustion zone.

(d) For a flare, the design analysis must consider the vent stream composition, constituent concentration, and flow rate. The

design analysis must also consider the requirements specified in subsection 4 of section 33-24-05-403.

(e) For a condenser, the design analysis must consider the vent stream composition, constituent concentration, flow rate, relative humidity, and temperature. The design analysis must also establish the design outlet organic compound concentration level, design average temperature of the condenser exhaust vent stream, and design average temperatures of the coolant fluid at the condenser inlet and outlet.

(f) For a carbon adsorption system such as a fixed-bed adsorber that regenerates the carbon bed directly onsite in the control device, the design analysis must consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis must also establish the design exhaust vent stream organic compound concentration level, the number and capacity of carbon beds, type and working capacity of activated carbon used for carbon beds, design total steam flow over the period of each complete carbon bed regeneration cycle, duration of the carbon bed steaming and cooling or drying cycle, design carbon bed temperature after regeneration, design carbon bed regeneration time, and design service life of carbon.

(g) For a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device, the design analysis must consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis must also establish the design outlet organic concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.

(4) A statement signed and dated by the owner or operator certifying that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur.

(5) A statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of ninety-five percent or greater unless the total organic concentration limit of subsection 1 of section 33-24-05-402 is achieved at an efficiency less than ninety-five weight percent or the total organic emission limits of subsection 1 of section 33-24-05-402 for affected process vents at the facility can be obtained by a control device involving vapor recovery and efficiency less than ninety-five weight percent. A statement provided by the control device manufacturer or vendor certifying that the control equipment meets the design specifications may be used to comply with this requirement.

(6) If performance tests are used to demonstrate compliance, all test results.

3. Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of sections 33-24-05-400 through 33-24-05-419 must be recorded and up to date in the facility operating record. The information must include:

   a. Description and date of each modification that is made to the closed-vent system or control device design.

   b. Identification of operating parameters, description of monitoring device, and diagram of monitoring sensor location or locations used to comply with subdivisions a and b of subsection 6 of section 33-24-05-403.

   c. Monitoring, operating, and inspection information required by subsections 6-11 of section 33-24-05-403.

   d. Date, time, and duration of each period that occurs while the control device is operating when any monitored parameter exceeds the value established in the control device design analysis as specified below:

      (1) For a thermal vapor incinerator designed to operate with a minimum residence time of fifty-hundredths seconds at a minimum temperature of seven hundred sixty degrees Centigrade period when the combustion temperature is below seven hundred sixty degrees Centigrade.

      (2) For a thermal vapor incinerator designed to operate with an organic emission reduction efficiency of ninety-five weight percent or greater period when the combustion zone temperature is more than twenty-eight degrees Centigrade below the designed average combustion zone temperature established as a requirement of subparagraph a of paragraph 3 of subdivision d of subsection 2.

      (3) For a catalytic vapor incinerator, period when:

         (a) Temperature of the vent stream at the catalytic bed inlet is more than twenty-eight degrees Centigrade below the average temperature of the inlet vent stream established as a requirement of subparagraph b of paragraph 3 of subdivision d of subsection 2; or

         (b) Temperature difference across the catalyst bed is less than eighty percent of the design average temperature difference established as a requirement of subparagraph b of paragraph 3 of subdivision d of subsection 2.

      (4) For a boiler or process heater, period when:

         (a) Flame zone temperature is more than twenty-eight degrees Centigrade below the design average flame zone temperature established as a requirement of subparagraph c of paragraph 3 of subdivision 4 of subsection 2; or

(b) Position changes where the vent stream is introduced to the combustion zone from the location established as a requirement of subparagraph c of paragraph 3 of subdivision d of subsection 2.

(5) For a flare, period when the pilot flame is not ignited.

(6) For a condenser that complies with subparagraph a of paragraph 6 of subdivision b of subsection 6 of section 33-24-05-403 period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the condenser are more than twenty percent greater than the design outlet organic compound concentration level established as a requirement of subparagraph e of paragraph 3 of subdivision d of subsection 2.

(7) For a condenser that complies with subparagraph b of paragraph 6 of subdivision b of subsection 6 of section 33-24-05-403, period when:

(a) Temperature of the exhaust vent stream from the condenser is more than six degrees Centigrade above the design average exhaust vent stream temperature established as a requirement of subparagraph e of paragraph 3 of subdivision d of subsection 2; or

(b) Temperature of the coolant fluid exiting the condenser is more than six degrees Centigrade above the design average coolant fluid temperature at the condenser outlet established as a requirement of subparagraph e of paragraph 3 of subdivision d of subsection 2.

(8) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates carbon bed directly onsite in the control device and complies with subparagraph a of paragraph 7 of subdivision b of subsection 6 of section 33-24-05-403, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the carbon bed are more than twenty percent greater than the design exhaust vent stream organic compound concentration level established as a requirement of subparagraph f of paragraph 3 of subdivision d of subsection 2.

(9) For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly onsite in the control device and complies with subparagraph b of paragraph 7 of subdivision b of subsection 6 of section 33-24-05-403, period when the vent stream continues to flow through the control device beyond the predetermined carbon bed regeneration time established as a requirement of subparagraph f of paragraph 3 of subdivision d of subsection 2.

e. Explanation for each period recorded under subdivision d of the cause for control device operating parameter exceeding the design value and the measures implemented to correct the control device operation.

f. For a carbon adsorption system operated subject to requirements specified

in subsection 7 of section 33-24-05-403 or subdivision b of subsection 8 of section 33-24-05-403, date when existing carbon in the control device is replaced with fresh carbon.

g. For a carbon adsorption system operated subject to requirements specified in subdivision a of subsection 8 of section 33-24-05-403, a log that records:

(1) Date and time when control device is monitored for carbon breakthrough and the monitoring device reading.

(2) Date when existing carbon in the control device is replaced with fresh carbon.

h. Date of each control device startup and shutdown.

i. An owner or operator designating any components of a closed-vent system as unsafe to monitor pursuant to subsection 15 of section 33-24-05-403 shall record in a log that is kept in the facility operating record the identification of closed-vent system components that are designated as unsafe to monitor in accordance with the requirements of subsection 15 of section 33-24-05-403, an explanation for each closed-vent system component stating why the closed-vent system component is unsafe to monitor, and the plan for monitoring each closed-vent system component.

j. When each leak is detected as specified in subsection 12 of section 33-24-05-403, the following information shall be recorded:

(1) The instrument identification number, the closed-vent system component identification number, and the operator name, initials, or identification number;

(2) The date the leak was detected and the date of first attempt to repair the leak;

(3) The date of successful repair of the leak;

(4) Maximum instrument reading measured by method 21 of 40 CFR part 60, appendix A after it is successfully repaired or determined to be nonrepairable; and

(5) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak;

(a) The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.

(b) If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked onsite before depletion and the reason for depletion.

4. Records of the monitoring, operating, and inspection information required by

subdivisions c through ~~h~~ j of subsection 3 ~~need be kept only three years.~~ must be maintained by the owner or operator for at least three years following the date of each occurrence, measurement, maintenance, corrective action, or record.

5. For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, the department will specify the appropriate recordkeeping requirements.

6. To date information and data used to determine whether or not a process vent is subject to the requirements in section 33-24-05-402 including supporting documentation as required by subdivision b of subsection 4 of section 33-24-05-404 when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used, must be recorded in a log that is kept in the facility operating record.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-406. Reporting requirements.

1. A semiannual report must be submitted by owners and operators subject to the requirements of sections 33-24-05-400 through 33-24-05-419 to the department by dates specified by the department. The report must include the following information:

   a. The state/environmental protection agency identification number, name, and address of the facility.

   b. For each month during the semiannual reporting period, dates when the control device exceeded or operated outside of the design specifications as defined in subdivision d of subsection 3 of section 33-24-05-405 and as indicated by the control device monitoring required by subsection 6 of section 33-24-05-403 and such exceedances where not corrected within twenty-four hours, or that a flare operated with visible emissions as designed in subsection 4 of section 33-24-05-403 and as determined by method 22 monitoring, the duration and cause of each exceedance or visible emission, and any corrective measures taken.

2. If, during the semiannual reporting period, the control device does not exceed or operate outside of the design specifications as defined in subdivision d of subsection 3 of section 33-24-05-405 for more than twenty-four hours or a flare does not operate with visible emissions as defined in subsection 4 of section 33-24-05-403, a report to the department is not required.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-407. [Reserved]

33-24-05-408. [Reserved]

33-24-05-409. [Reserved]

33-24-05-410. [Reserved]

33-24-05-411. [Reserved]

33-24-05-412. [Reserved]

33-24-05-413. [Reserved]

33-24-05-414. [Reserved]

33-24-05-415. [Reserved]

33-24-05-416. [Reserved]

33-24-05-417. [Reserved]

33-24-05-418. [Reserved]

33-24-05-419. [Reserved]

33-24-05-420. Applicability to air emission standards for equipment leaks.

1. The regulations in sections 33-24-05-420 through 33-24-05-449 apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in section 33-24-02-04).

2. Except as provided in subsection 11 of section 33-24-05-434, sections 33-24-05-420 through 33-24-05-449 apply to equipment that contains or contacts hazardous waste with organic concentrations of at least ten percent by weight that are managed in one of the following:

   a. ~~Units that are~~ A unit that is subject to the permitting requirements of chapter 33-24-06; or

   b. ~~Hazardous waste recycling units that are located on hazardous waste management facilities otherwise subject to the permitting requirements of chapter 33-24-06.~~ A unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of subsection 1 of section 33-24-03-12 (for example, a hazardous waste recycling unit that is not a ninety-day tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of chapter 33-24-06, or

   c. A unit (including a hazardous waste recycling unit) that is exempt from permitting under the provisions of subsection 1 of section 33-24-03-12 (for example, a ninety-day tank or container).

3. If the owner or operator of equipment subject to the requirements of sections 33-24-05-422 through 33-24-05-435 has received a permit under this article prior to December 21, 1990, the requirements of sections 33-24-05-422 through

33-24-05-435 must be incorporated when the permit is reissued under section 33-24-07-11 or reviewed under section 33-24-06-06.

4. Each piece of equipment to which sections 33-24-05-420 through 33-24-05-449 applies must be marked in such a manner that it can be extinguished readily from other pieces of equipment.

5. Equipment that is in vacuum service is excluded from the requirements of sections 33-24-05-422 to 33-24-05-430 if it is identified as required in subdivision e of subsection 7 of section 33-24-05-434. [Note: The requirements of sections 33-24-05-422 through 33-24-05-435 apply to equipment associated with hazardous waste recycling units previously exempt under subdivision a of subsection 3. Other exemptions under sections 33-24-02-04, 33-24-03-12, and subsection 7 of section 33-24-05-01 are not affected by these requirements.]

6. Equipment that contains or contacts hazardous waste with an organic concentration of at least ten percent by weight for a period of less than three hundred hours per calendar year is excluded from the requirements of sections 33-24-05-422 through 33-24-05-430 if it is identified as required in subdivision f of subsection 7 of section 33-24-05-434.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-421. Definitions as used in sections 33-24-05-420 through 33-24-05-435. All terms have the meaning given them in section 33-24-05-401, ~~chapter 23-20.3,~~ and chapters 33-24-01 through 33-24-05 and chapters 33-24-01 through 33-24-05.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-422. Standards - Pumps in light liquid service.

1. Timeframe.

   a. Each pump in light liquid service must be monitored monthly to detect leaks by the method specified in subsection 2 of section 33-24-05-433, except as provided in subsections 4, 5, and 6.

   b. Each pump in light liquid service must be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

2. Indicators.

   a. If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

   b. If there are indications of liquids dripping from the pump seal, a leak

is detected.

3. Response.

   a. When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in section 33-24-05-429.

   b. A first attempt at repair (~~e.g.,~~ for example, tightening the packing gland) must be made no later than five calendar days after each leak is detected.

4. Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of subsection 1, provided the following requirements are met:

   a. Each dual mechanical seal system must be:

      (1) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure;

      (2) Equipped with a barrier fluid degasing reservoir that is connected by a closed-vent system to a control device that complies with requirements of section 33-24-05-430; or

      (3) Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.

   b. The barrier fluid system must not be a hazardous waste with organic concentrations ten percent or greater by weight.

   c. Each barrier fluid system must be equipped with a sensor that will detect failure of the sealed system, the barrier fluid system, or both.

   d. Each pump must be checked by visual inspection each calendar week for indications of liquids dripping from the pump seals.

   e. Checks.

      (1) Each sensor as described in subdivision c of subsection 4 must be checked daily or be equipped with an audible alarm that must be checked monthly to ensure that it is functioning properly.

      (2) The owner or operator must determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

   f. Leaks.

      (1) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion determined in paragraph 2 of subdivision e of subsection 4, a leak is detected.

(2) When a leak is detected it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in section 33-24-05-429.

(3) A first attempt at repair (~~e.g.,~~ for example, relapping the seal) must be made no later than five calendar days after each leak is detected.

5. Any pump that is designated, as described in subdivision b of subsection 7 of section 33-24-05-434, for no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, is exempt from the requirements of subsections 1, 3, and 4 if the pump meets the following requirements:

   a. Must have no externally actuated shaft penetrating the pump housing.

   b. Must operate with no detectable emissions as indicated by an instrument reading of less than five hundred parts per million above background as measured by the methods specified in subsection 3 of section 33-24-05-433.

   c. Must be tested for compliance with subdivision b of subsection 5 initially upon designation, annually, and at other times as requested by the department.

6. If any pump is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device that complies with the requirements of section 33-24-05-430, it is exempt from the requirements of subsections 1 through 5.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-423. Standards - Compressors.

1. Each compressor must be equipped with a seal system that includes a barrier fluid system and that prevents leakage of total organic emissions to the atmosphere, except as provided in subsections 8 and 9.

2. Each compressor seal system as required in subsection 1 must be:

   a. Operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure;

   b. Equipped with the barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of section 33-24-05-430; or

   c. Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to atmosphere.

3. The barrier fluid must not be a hazardous waste with organic concentrations

ten percent or greater by weight.

4. Each barrier fluid system as described in subsections 1 through 3 must be equipped with a sensor that would detect failure of the sealed system, barrier fluid system, or both.

5. Checks.

   a. Each sensor as required in subsection 4 must be checked daily or must be equipped with an audible alarm that must be checked monthly to ensure that it is functioning properly unless the compressor is located within the boundary of an unmanned plant site, in which case the sensor must be checked daily.

   b. The owner or operator shall determine, based on design consideration and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

6. If the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion determined under subdivision b of subsection 5, a leak is detected.

7. Leaks.

   a. When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in section 33-24-05-429.

   b. First attempt at repair, ~~e.g.,~~ for example, tightening the packing gland, must be made no later than five calendar days after each leak is detected.

8. A compressor is exempt from the requirements of subsections 1 and 2 if it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to control device that complies with the requirements of section 33-24-05-430 except as provided in subsection 9.

9. Any compressor that is designed, as described in subdivision b of subsection 7 of section 33-24-05-434, for no detectable emissions as indicated by an instrument reading of less than five hundred parts per million above background is exempt from the requirements of subsections 1 through 8 if the compressor:

   a. Is determined to be operating with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subsection 3 of section 33-24-05-433.

   b. Is tested for compliance with subdivision a of subsection 9 initially upon designation, annually, and other times as requested by the department.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-424. Standards - Pressure relief devices in gas or vapor service.

1. Except during pressure releases, each pressure relief device in gas or vapor service must be operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subsection 3 of section 33-24-05-433.

2. Pressure release.

   a. After each pressure release, the pressure relief device must be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as soon as practicable, no later than five calendar days after each pressure release, except as provided in section 33-24-05-429.

   b. No later than five calendar days after the pressure release, the pressure relief device must be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as measured by the method specified in subsection 3 of section 33-24-05-433.

3. Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in section 33-24-05-430 is exempt from the requirements of subsections 1 and 2.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-425. Standards - Sampling connecting systems.

1. Each sampling connection system must be equipped with a closed-purge, closed-loop, ~~system~~ or closed-vent system. This system must collect the sample purge for return to the process or for routing to the appropriate treatment system. Gases displaced during filling of the sample container are not required to be collected or captured.

2. Each closed-purge, closed-loop, ~~system~~ or closed-vent system as required in subsection 1 must meet one of the following requirements:

   a. Return the purged ~~hazardous waste stream directly to the hazardous waste management process line with no detectable emissions to atmosphere;~~ process fluid directly to the process line;

   b. Collect and recycle the purged ~~hazardous waste stream with no detectable emissions to atmosphere;~~ process fluid; or

   c. Be designed and operated to capture and transport all ~~purged hazardous~~

~~waste streams to a control device that complies with the requirements of section 33-24-05-430.~~ the purged process fluid to a waste management unit that complies with the applicable requirements of sections 33-24-05-454 through 33-24-05-456 or a control device that complies with the requiremetns of section 33-24-05-430.

3. In-situ sampling systems ~~are exempt from the requirements of subsections 1 and 2.~~ without purges are exempt from the requirements of subsections 1 and 2.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-426. Standards - Open-ended valves or lines.

1. Requirements.

   a. Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve.

   b. The cap, blind flange, plug, or second valve must seal the open end at all times except during operations requiring hazardous waste stream flow through the open-ended valve or line.

2. Each open-ended valve or line equipped with a second valve must be operated in a manner such that the valve on the hazardous waste stream end is closed before the second valve is closed.

3. When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but must comply with subsection 1 at all other times.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-427. Standards - Valves in gas or vapor service or in light liquid service.

1. Each valve in gas or vapor or light liquid service must be monitored monthly to detect leaks by the methods specified in subsection 2 of section 33-24-05-433 and must comply with subsections 2 through 5, except as provided in subsections 6, 7, and 8 and sections 33-24-05-431 and 33-24-05-432.

2. If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

3. Timeframe.

   a. Any valve for which a leak is not detected for two successive months may be monitored the first month of every succeeding quarter, beginning with the next quarter, until a leak is detected.

b. If a leak is detected, the valve must be monitored monthly until a leak is not detected for two successive months.

4. Release.

   a. When a leak is detected, it must be repaired as soon as practicable, but no later than fifteen calendar days after the leak is detected, except as provided in section 33-24-05-429.

   b. A first attempt at repair must be made no later than five calendar days after each leak is detected.

5. First attempts at repair include, but are not limited to, the following best practices where applicable:

   a. Tightening of bonnet bolts.

   b. Replacement of bonnet bolts.

   c. Tightening of packing gland nuts.

   d. Injection of lubricant into lubricated packing.

6. Any valve that is designated, as described in subdivision b of subsection 7 of section 33-24-05-434, for no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, is exempt from the requirements of subsection 1 if the valve:

   a. Has no external actuating mechanism in contact with the hazardous waste stream.

   b. Is operated with emissions less than five hundred parts per million above background as determined by the methods specified in subsection 3 of section 33-24-05-433.

   c. Is tested for compliance with subdivision b of subsection 6 initially upon designation, annually, and at other times as requested by the department.

7. Any valve that is designated, as described in subdivision a of subsection 8 of section 33-24-04-434 as an unsafe-to-monitor valve is exempt from the requirements of subsection 1 if:

   a. The owner or operator of the valve determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with subsection 1.

   b. The owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.

8. Any valve that is designated as described in subdivision b of subsection 8 of section 33-24-05-434, as a difficult-to-monitor valve is exempt from the requirements of subsection 1 if:

a. The owner or operator of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than two meters above a support surface.

b. The hazardous waste management unit within which the valve is located was in operation before June 21, 1990. The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-428. Standards - Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors.

1. Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors must be monitored within five days by the method specified in subsection 2 of section 33-24-05-433 if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

2. If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

3. Timeframe.

   a. When a leak is detected, it must be repaired as soon as practicable, but not later than fifteen calendar days after it is detected, except as provided in section 33-24-05-429.

   b. The first attempt at repair must be made no later than five calendar days after each leak is detected.

4. First attempts at repair include, but are not limited to, the best practices described under subsection 5 of section 33-24-05-427.

5. Any connector that is inaccessible or is ceramic or ceramic-lined (for example, porcelain, glass, or glass-lined) is exempt from the monitoring requirements of subsection 1 and from the recordkeeping requirements of section 33-24-05-434.

History: Effective December 1, 1991; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-429. Standards - Delay of repair.

1. Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically unfeasible without a hazardous waste management unit shutdown. In such a case, repair of this equipment must occur

before the end of the next hazardous waste management unit shutdown.

2. Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the hazardous waste management unit and that does not continue to contain or contact hazardous waste with organic concentrations of at least ten percent by weight.

3. Delay of repair for valves will be allowed if:

   a. The owner or operator determines that emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair.

   b. When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with section 33-24-05-430.

4. Delay of repair for pumps will be allowed if:

   a. Repair requires the use of a dual mechanical seal system that includes a barrier fluid system.

   b. Repair is completed as soon as practicable, but not later than six months after the leak was detected.

5. Delay of repair beyond a hazardous waste management unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the hazardous waste management unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next hazardous waste management unit shutdown will not be allowed unless the next hazardous waste management unit shutdown occurs sooner than six months after the first hazardous waste management unit shutdown.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-430. Standards - Closed-vent systems and control devices. Owners or operators of closed-vent systems and control devices shall comply with the provisions of section 33-24-05-403.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-431. Alternative standards for valves in gas or vapor service or light liquid service - Percentage of valves allowed to leak.

1. An owner or operator subject to the requirements of section 33-24-05-427 may elect to have all valves within a hazardous waste management unit comply with an alternative standard that allows no greater than two percent of the valves

to leak.

2. The following requirements must be met if an owner or operator decides to comply with the alternative standard of allowing two percent of valves to leak:

   a. An owner or operator must notify the department that the owner or operator has elected to comply with the requirements of this section.

   b. A performance test as specified in subsection 3 must be conducted initially upon designation, annually, and at other times requested by the department.

   c. If a valve leak is detected, it must be repaired in accordance with subsections 4 and 5 of section 33-24-05-427.

3. Performance tests must be conducted in the following manner:

   a. All valves subject to requirements in section 33-24-05-427 within the hazardous waste management unit shall be monitored within one week by the methods specified in subsection 2 of section 33-24-05-433.

   b. If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

   c. The leak percentage must be determined by dividing the number of valves subject to the requirements in section 33-24-05-427 for which leaks are detected by the total number of valves subject to the requirements in section 33-24-05-427 within the hazardous waste management unit.

4. If an owner or operator decides to comply with this section no longer, the owner or operator must notify the department in writing that the work practice standard described in subsections 1 through 5 of section 33-24-05-427 will be followed.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-432. Alternative standards for valves in gas or vapor service or in light liquid service - Skip period leak detection and repair.

1. Alternatives.

   a. An owner or operator subject to the requirements of section 33-24-05-427 may elect for all valves within a hazardous waste management unit to comply with one of the alternative work practices specified in subdivisions b and c of subsection 2.

   b. An owner or operator must notify the department before implementing one of the alternative work practices.

2. Requirements.

a. An owner or operator shall comply with the requirements for valves, as described in section 33-24-05-427, except as described in subdivisions b and c of subsection 2.

b. After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two percent, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves subject to the requirements in section 33-24-05-427.

c. After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two percent, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves subject to the requirements in section 33-24-05-427.

d. If the percentage of valves leaking is greater than two percent, the owner or operator shall monitor monthly in compliance with the requirements in section 33-24-05-427, but may again elect to use this section after meeting the requirements of subdivision a of subsection 3 of section 33-24-05-427.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-433. Test methods and procedures.

1. Each owner or operator subject to the provisions of sections 33-24-05-420 through 33-24-05-449 shall comply with the test methods and procedures requirements provided in this section.

2. Leak detection monitoring, as required in sections 33-24-05-422 through 33-24-05-432, must comply with the following requirements:

   a. Monitoring must comply with reference method 21 in 40 CFR part 60.

   b. The detection instrument must meet the performance criteria of reference method 21.

   c. The instrument must be calibrated before use on each day of its use by the procedures specified in reference method 21.

   d. Calibration gas must be:

      (1) Zero air (less than ten parts per million of hydrocarbon in air).

      (2) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, ten thousand parts per million methane or n-hexane.

   e. The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

3. When equipment is tested for compliance with no detectable emissions, as required in subsection 5 of section 33-24-05-422, subsection 9 of section 33-24-05-423, section 33-24-05-424, and subsection 6 of section 33-24-05-427, the test must comply with the following requirements:

   a. The requirements of subdivisions a through d of subsection 2 apply.

   b. The background level must be determined as set forth in reference method 21.

   c. The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

   d. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with five hundred parts per million for determining compliance.

4. In accordance with the waste analysis plan required by subsection 2 of section 33-24-05-04, an owner or operator of the facility must determine, for each piece of equipment, whether the equipment contains or contacts a hazardous waste with organic concentration that equals or exceeds ten percent by weight using the following:

   a. Methods described in American society for testing and materials methods D2267-88, E169-87, E168-88, E260-85, as incorporated by reference under section 33-24-01-05;

   b. Method 9060 or 8240 of SW-846, as incorporated by reference under section 33-24-01-05; or

   c. Application of the knowledge of the nature of the hazardous waste stream or process by which it was produced. Documentation of a waste determination by knowledge is required. Examples of documentation that must be used to support a determination under the provision includes production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to have a total organic content less than ten percent, or prior speciation analysis results on the same waste stream where it can also be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.

5. If an owner or operator determines that a piece of equipment contains or contacts a hazardous waste with organic concentrations at least ten percent by weight, the determination can be revised only after following the procedures in subdivision a or b of subsection 4.

6. When an owner or operator and the department do not agree on whether a piece of equipment contains or contacts a hazardous waste with organic concentrations at least ten percent by weight, the procedures in subdivision a or b of subsection 4 can be used to resolve the dispute.

7. Samples used in determining the percent organic content must be representative of the highest total organic content hazardous waste that is expected to be contained or contact the equipment.

8. To determine if pump or valves are in light liquid service, the vapor pressures of constituents may be obtained from standard reference texts or may be determined by American society for testing and materials D-2879-86, as incorporated by reference under section 33-24-01-05.

9. Performance tests to determine if control device achieves ninety-five weight percent organic emission reduction shall comply with the procedures of subdivisions a through d of subsection 3 of section 33-24-05-404.

History: Effective December 1, 1991; amended effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-434. Recordkeeping requirements.

1. Owner or operator.

   a. Each owner or operator subject to the provisions of sections 33-24-05-420 through 33-24-05-449 shall comply with the recordkeeping requirements of this section.

   b. An owner or operator of more than one hazardous waste management unit subject to the provisions of sections 33-24-05-420 through 33-24-05-449 may comply with the recordkeeping requirements for these hazardous waste management units in one recordkeeping system if the system identifies each record by each hazardous waste management unit.

2. Owners and operators must record the following information in the facility operating record:

   a. For each piece of equipment to which sections 33-24-05-420 through 33-24-05-449 applies:

      (1) Equipment identification number and hazardous waste management unit identification.

      (2) Approximate locations within the facility, ~~e.g.,~~ for example, identify the hazardous waste management unit on a facility plot plan.

      (3) Type of equipment, ~~e.g.,~~ for example, a pump or pipeline valve.

      (4) Percent-by-weight total organics in the hazardous waste stream at the equipment.

      (5) Hazardous waste state at the equipment, ~~e.g.,~~ for example, gas and vapor or liquid.

      (6) Method of compliance with the standard, ~~e.g.,~~ for example, "monthly

leak detection and repair" or "equipped with dual mechanical seals".

b. For facilities that comply with the provisions of subdivision b of subsection 1 of section 33-24-05-403, an implementation schedule as specified in subdivision b of subsection 1 of section 33-24-05-403.

c. Where an owner or operator chooses to use test data to demonstrate the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan as specified in subdivision c of subsection 2 of section 33-24-05-405.

d. Documentation of compliance with section 33-24-05-430, including the detailed design documentation or performance test results specified in subdivision d of subsection 2 of section 33-24-05-405.

3. When each leak is detected as specified in sections 33-24-05-422, 33-24-05-423, 33-24-05-427, and 33-24-05-428, the following requirements apply:

a. A weatherproof and fully visible identification, marked with the equipment identification number, the date evidence of a potential leak was found in accordance with subsection 1 of section 33-24-05-428, and the date the leak was detected, must be attached to the leaking equipment.

b. The identification on equipment, except on a valve, may be removed after it has been repaired.

c. The identification on a valve may be removed after it has been monitored for two successive months as specified in subsection 3 of section 33-24-05-427 and no leak has been detected during those two months.

4. When each leak is detected as specified in sections 33-24-05-422, 33-24-05-423, 33-24-05-427, and 33-24-05-428, the following information must be recorded in an inspection log and must be kept in the facility operating record:

a. The instrument and operator identification numbers and the equipment identification number.

b. The date evidence of a potential leak was found in accordance with subsection 1 of section 33-24-05-428.

c. The date the leak was detected and the dates of each attempt to repair the leak.

d. Repair methods applied in each attempt to repair the leak.

e. "Above ten thousand" if the maximum instrument reading measured by the methods specified in subsection 2 of section 33-24-05-433 after each repair attempt is equal to or greater than ten thousand parts per million.

f. "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

g. Documentation supporting the delay of repair of a valve in compliance with subsection 3 of section 33-24-05-429.

h. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a hazardous waste management unit shutdown.

i. The expected date of successful repair of the leak if a leak is not repaired within fifteen calendar days.

j. The date of successful repair of the leak.

5. Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of section 33-24-05-430 must be recorded and kept up-to-date in the facility operating record as specified in subsection 3 of section 33-24-05-405. Design documentation as specified in subdivisions a and b of subsection 3 of section 33-24-05-405 and monitoring, operating, and inspection information in subdivisions c through h of subsection 3 of section 33-24-05-405.

6. For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, the department will specify the appropriate recordkeeping requirements.

7. The following information pertaining to all equipment subject to the requirements in sections 33-24-05-422 through 33-24-05-430 must be recorded in a log that is kept in the facility operating record:

   a. A list of identification numbers for equipment (except welded fitting) subject to the requirements of sections 33-24-05-420 through 33-24-05-449.

   b. Equipment.

      (1) A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, under the provisions of subsection 5 of section 33-24-05-422, subsection 9 of section 33-24-05-423, and subsection 6 of section 33-24-05-427.

      (2) The designation of this equipment as subject to the requirements of subsection 5 of section 33-24-05-422, subsection 9 of section 33-24-05-423, or subsection 6 of section 33-24-05-427 must be signed by the owner or operator.

   c. A list of equipment identification numbers for pressure relief devices required to comply with subsection 1 of section 33-24-05-424.

   d. Data.

      (1) The dates of each compliance test required in subsection 5 of

section 33-24-05-422, subsection 9 of section 33-24-05-423, section 33-24-05-424, and subsection 6 of section 33-24-05-427.

(2) The background level measured during each compliance test.

(3) The maximum instrument reading measured at the equipment during each compliance test.

e. A list of identification numbers for equipment in vacuum service.

8. The following information pertaining to all valves subject to the requirements of subsections 7 and 8 of section 33-24-05-427 must be recorded in a log that is kept in the facility operating record.

a. A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve.

b. A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the plan schedule for monitoring each valve.

9. The following information must be recorded in the facility operating record for valves complying with section 33-24-05-432:

a. A schedule of the monitoring.

b. The percent of valves found leaking during each monitoring period.

10. The following information must be recorded in a log that is kept in the facility operating record:

a. Criteria required in paragraph 2 of subdivision e of subsection 4 of section 33-24-05-422 and subdivision b of subsection 5 of section 33-24-05-423 and an explanation of the design criteria.

b. Any changes to these criteria and the reasons for the changes.

11. The following information must be recorded in a log that is kept in the facility operating record for use in determining exemptions as provided in the applicability section of sections 33-24-05-420 through 33-24-05-449 and other specific sections:

a. An analysis determining the design capacity of the hazardous waste management unit.

b. A statement listing the hazardous waste influent to and effluent from each hazardous waste management unit subject to the requirements in sections 33-24-05-422 through 33-24-05-430 and an analysis determining whether these hazardous wastes are heavy liquids.

c. An up-to-date analysis and the supporting information and data used to determine whether or not equipment is subject to the requirements in sections 33-24-05-422 through 33-24-05-430. The record must include

supporting documentation as required by subdivision c of subsection 4 of section 33-24-05-433 when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used. If the owner or operator takes any action, ~~e.g.,~~ for example, changing the process that produced the waste, that could result in an increase in the total organic content of the waste contained in or contacted by equipment determined not to be subject to the requirements in sections 33-24-05-422 through 33-24-05-430, then a new determination is required.

12. Records of the equipment leak information required by subsection 4 and the operating information required by subsection 5 need be kept only three years.

13. The owner or operator of any facility that is subject to sections 33-24-05-420 through 33-24-05-449 and to the regulations at 40 CFR part 60, subpart vv, or 40 CFR part 61, subpart v, may elect to determine compliance with sections 33-24-05-420 through 33-24-05-449 by documentation either pursuant to section 33-24-05-434, or pursuant to those provisions of 40 CFR part 60 or 61, to the extent that the documentation under the regulation at 40 CFR part 60 or part 61 duplicates the documentation required under sections 33-24-05-420 through 33-24-05-449. The documentation under the regulations at 40 CFR part 60 or part 61 must be kept with or made readily available with the facility operating record.

History: Effective December 1, 1991; amended effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-435. Reporting requirements.

1. A semiannual report must be submitted by owners and operators subject to the requirements of sections 33-24-05-420 through 33-24-05-449 to the department by dates specified by the department. The report must include the following information:

   a. The state environmental protection agency identification number, name, and address of the facility.

   b. For each month during the semiannual reporting period:

      (1) The equipment identification number of each valve for which a leak was not repaired as required in subsection 4 of section 33-24-05-427.

      (2) The equipment identification number of each pump for which a leak was not repaired as required in subdivision f of subsection 4 of section 33-24-05-422 and subsection 3 of section 33-24-05-422.

      (3) The equipment identification number of each compressor for which a leak was not repaired as required in subsection 7 of section 33-24-05-423.

   c. Dates of hazardous waste management unit shutdowns that occurred within

the semiannual reporting period.

d. For each month during the semiannual reporting period, dates when the control device installed as required by section 33-24-05-422, 33-24-05-423, 33-24-05-424, or 33-24-05-425 exceeded or operated outside of the design specifications as defined in subsection 5 of section 33-24-05-434 and as indicated by the control device monitoring required by section 33-24-05-430 and was not corrected within twenty-four hours, the duration and cause of each exceedance, and any corrective measures taken.

2. If, during the semiannual reporting period, leaks from valves, pumps, and compressors are repaired as required in subsection 4 of section 33-24-05-427, subdivision f of subsection 4 of section 33-24-05-422, subsection 3 of section 33-24-05-422, and subsection 7 of section 33-24-05-423, respectively, and the control device does not exceed or operate outside of the design specifications as defined in subsection 5 of section 33-24-05-434 for more than twenty-four hours, a report to the department is not required.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-436. [Reserved]

33-24-05-437. [Reserved]

33-24-05-438. [Reserved]

33-24-05-439. [Reserved]

33-24-05-440. [Reserved]

33-24-05-441. [Reserved]

33-24-05-442. [Reserved]

33-24-05-443. [Reserved]

33-24-05-444. [Reserved]

33-24-05-445. [Reserved]

33-24-05-446. [Reserved]

33-24-05-447. [Reserved]

33-24-05-448. [Reserved]

33-24-05-449. [Reserved]

33-24-05-450. ~~[Reserved]~~ Applicability to air emission standards for tanks, surface impoundments and containers.

1. The requirements of sections 33-24-05-450 through 33-24-05-474 apply to owners and operators of all facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers subject to either sections 33-24-05-89 through 33-24-05-129 or sections 33-24-05-560 through 33-24-05-574 except as section 33-24-05-01 and subsection 2 provide otherwise.

2. The requirements of sections 33-24-05-450 through 33-24-05-474 do not apply to the following waste management units at the facility:

   a. A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after this date;

   b. A container that has a design capacity less than or equal to 26.417 gallons ([.1 meters^3];

   c. A tank in which an owner or operator has stopped adding hazardous waste and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan;

   d. A surface impoundment in which an owner or operator has stopped adding hazardous waste (except to implement an approved closure plan) and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan;

   e. A waste management unit that is used solely for onsite treatment or storage of hazardous waste that is generated as the result of implementing remedial activities required under the corrective action authorities of RCRA sections 3004(u), 3004(v) or 3008(h), CERCLA authorities, or similar federal or state authorities;

   f. A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act;

   g. A hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR part 60, part 61, or part 63. For the purpose of complying with this paragraph, a tank for which the air emission control includes an enclosure, as opposed to a cover, must be in compliance with the enclosure and control device requirements of subsection 9 of section 33-24-05-454, except as provided in subdivision e of subsection 3 of section 33-24-05-452; and

   h. A tank that has a process vent as defined in section 33-24-05-401.

3. For the owner and operator of a facility subject to this subpart and who received a final state issued hazardous waste permit, the requirements of sections 33-24-05-450 through 33-24-05-474 shall be incorporated into the permit when the permit is reissued in accordance with the requirements of section 33-24-07-17 or reviewed in accordance with the requirements of section 33-24-07-11. Until such date when the owner and operator receives a final

permit incorporating the requirements of sections 33-24-05-450 through 33-24-05-474, the owner and operator is subject to the requirements of subsection 5 of section 33-24-06-16.

4. The requirements of this subpart, except for the recordkeeping requirements specified in subsection 9 of section 33-24-05-459, are administratively stayed for a tank or a container used for the management of hazardous waste generated by organic peroxide manufacturing and its associated laboratory operations when the owner or operator of the unit meets all of the following conditions:

   a. The owner or operator identifies that the tank or container receives hazardous waste generated by an organic peroxide manufacturing process producing more than one functional family of organic peroxides or multiple organic peroxides within one functional family, that one or more of these organic peroxides could potentially undergo self-accelerating thermal decomposition at or below ambient temperatures, and that organic peroxides are the predominant products manufactured by the process. For the purpose of meeting the conditions of this paragraph, "organic peroxide" means an organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

   b. The owner or operator prepares documentation, in accordance with the requirements of subsection 9 of section 33-24-05-459, explaining why an undue safety hazard would be created if air emission controls specified in sections 33-24-05-454 through 33-24-05-457 are installed and operated on the tanks and containers used at the facility to manage the hazardous waste generated by the organic peroxide manufacturing process or processes meeting the conditions of subdivision a of subsection 4.

   c. The owner or operator notifies the department in writing that hazardous waste generated by an organic peroxide manufacturing process or processes meeting the conditions of subdivision a of subsection 4 are managed at the facility in tanks or containers meeting the conditions of subdivision b of subsection 4. The notification shall state the name and address of the facility, and be signed and dated by an authorized representative of the facility owner or operator.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-451. ~~[Reserved]~~ Definitions. As used in sections 33-24-05-450 through 33-24-05-474, all terms shall have the meaning given to them as defined below or as defined elsewhere in this article.

1. "Average volatile organic concentration" or "average VO concentration" means the mass-weighted average volatile organic concentration of a hazardous waste as determined in accordance with the requirements of section 33-24-05-454.

2. "Closure device" means a cap, hatch, lid, plug, seal, valve, or other type of fitting that blocks an opening in a cover such that when the device is secured

in the closed position it prevents or reduces air pollutant emissions to the atmosphere. Closure devices include devices that are detachable from the cover (for example, a sampling port cap), manually operated (for example, a hinged access lid or hatch), or automatically operated (for example, a spring-loaded pressure relief valve).

3. "Continuous seal" means a seal that forms a continuous closure that completely covers the space between the edge of the floating roof and the wall of a tank. A continuous seal may be a vapor-mounted seal, liquid-mounted seal, or metallic shoe seal. A continuous seal may be constructed of fastened segments so as to form a continuous seal.

4. "Cover" means a device that provides a continuous barrier over the hazardous waste managed in a unit to prevent or reduce air pollutant emissions to the atmosphere. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the unit on which the cover is used. A cover may be a separate piece of equipment which can be detached and removed from the unit or a cover may be formed by structural features permanently integrated into the design of the unit.

5. "Enclosure" means any structure that surrounds a tank or container, captures organic vapors emitted from the tank or container, and vents the captured vapors through a closed-vent system to a control device.

6. "External floating roof" means a pontoon or double-deck type cover that rests on the surface of a material managed in a tank with no fixed roof.

7. "Fixed roof" means a cover that is mounted on a unit in a stationary position and does not move with fluctuations in the level of the material managed in the unit.

8. "Floating membrane cover" means a cover consisting of a synthetic flexible membrane material that rests upon and is supported by the hazardous waste being managed in a surface impoundment.

9. "Floating roof" means a cover consisting of a double deck, pontoon single deck, or internal floating cover which rests upon and is supported by the material being contained, and is equipped with a continuous seal.

10. "Hard-piping" means pipe or tubing that is manufactured and properly installed in accordance with relevant standards and good engineering practices.

11. "In light material service" means the container is used to manage a material for which both of the following conditions apply: the vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals at 20 degrees Celsius; and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kilopascals at 20 degrees Celsius is equal to or greater than twenty percent by weight.

12. "Internal floating roof" means a cover that rests or floats on the material surface (but not necessarily in complete contact with it) inside a tank that has a fixed roof.

13. "Liquid-mounted seal" means a foam or liquid-filled primary seal mounted in contact with the hazardous waste between the tank wall and the floating roof continuously around the circumference of the tank.

14. "Malfunction" means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

15. "Maximum organic vapor pressure" means the sum of the individual organic constituent partial pressures exerted by the material contained in a tank, at the maximum vapor pressure-causing conditions (for example, temperature, agitation, pH effects of combining wastes, etc.) reasonably expected to occur in the tank. For the purpose of sections 33-24-05-450 through 33-24-05-474, maximum organic vapor pressure is determined using the procedures specified in subsection 3 of section 33-24-05-453.

16. "Metallic shoe seal" means a continuous seal that is constructed of metal sheets which are held vertically against the wall of the tank by springs, weighted levers, or other mechanisms and is connected to the floating roof by braces or other means. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

17. "No detectable organic emissions" means no escape of organics to the atmosphere as determined using the procedure specified in subsection 4 of section 33-24-05-453.

18. "Point of waste origination" means as follows:

    a. When the facility owner or operator is the generator of the hazardous waste, the point of waste origination means the point where a solid waste produced by a system, process, or waste management unit is determined to be a hazardous waste as defined in chapter 33-24-02.

       [Note: In this case, this term is being used in a manner similar to the use of the term "point of generation" in air standards established for waste management operations under authority of the Clean Air Act in 40 CFR parts 60, 61, and 63].

    b. When the facility owner and operator are not the generator of the hazardous waste, point of waste origination means the point where the owner or operator accepts delivery or takes possession of the hazardous waste.

19. "Point of waste treatment" means the point where a hazardous waste to be treated in accordance with section 33-24-05-452 exits the treatment process. Any waste determination shall be made before the waste is conveyed, handled, or otherwise managed in a manner that allows the waste to volatilize to the atmosphere.

20. "Safety device" means a closure device such as a pressure relief valve, frangible disc, fusible plug, or any other type of device which functions exclusively to prevent physical damage or permanent deformation to a unit or its air emission control equipment by venting gases or vapors directly to the

atmosphere during unsafe conditions resulting from an unplanned, accidental, or emergency event. For the purpose of sections 33-24-05-450 through 33-24-05-474, a safety device is not used for routine venting of gases or vapors from the vapor headspace underneath a cover such as during filling of the unit or to adjust the pressure in this vapor headspace in response to normal daily diurnal ambient temperature fluctuations. A safety device is designed to remain in a closed position during normal operations and open only when the internal pressure, or another relevant parameter, exceeds the device threshold setting applicable to the air emission control equipment as determined by the owner or operator based on manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials.

21. "Single-seal system" means a floating roof having one continuous seal. This seal may be vapor-mounted, liquid-mounted, or a metallic shoe seal.

22. "Vapor-mounted seal" means a continuous seal that is mounted such that there is a vapor space between the hazardous waste in the unit and the bottom of the seal.

23. "Volatile organic concentration" or "VO concentration" means the fraction by weight of the volatile organic compounds contained in a hazardous waste expressed in terms of parts per million as determined by direct measurement or by knowledge of the waste in accordance with the requirements of section 33-24-05-453. For the purpose of determining the VO concentration of a hazardous waste, organic compounds with a Henry's law constant value of at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in the liquid-phase (0.1 Y/X) [which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m^3] at 25 degrees Celsius must be included. Appendix VI of this subpart presents a list of compounds known to have a Henry's law constant value less than the cutoff level.

24. "Waste determination" means performing all applicable procedures in accordance with the requirements of section 33-24-05-454 to determine whether a hazardous waste meets standards specified in sections 33-24-05-450 through 33-24-05-474. Examples of a waste determination include performing the procedures in accordance with the requirements of section 33-24-05-454 to determine the average VO concentration of a hazardous waste at the point of waste origination; the average VO concentration of a hazardous waste at the point of waste treatment and comparing the results to the exit concentration limit specified for the process used to treat the hazardous waste; the organic reduction efficiency and the organic biodegradation efficiency for a biological process used to treat a hazardous waste and comparing the results to the applicable standards; or the maximum volatile organic vapor pressure for a hazardous waste in a tank and comparing the results to the applicable standards.

25. "Waste stabilization process" means any physical or chemical process used to either reduce the mobility of hazardous constituents in a hazardous waste or eliminate free liquids as determined by Test Method 9095 (Paint Filter Liquids Test) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05. A waste stabilization process includes mixing the hazardous waste with binders or

other materials, and curing the resulting hazardous waste and binder mixture. Other synonymous terms used to refer to this process are "waste fixation" or "waste solidification". This does not include the adding of absorbent materials to the surface of a waste, without mixing, agitation or subsequent curing, to absorb free liquid.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-452. ~~[Reserved]~~ Standards - General.

1. This section applies to the management of hazardous waste in tanks, surface impoundments, and containers subject to sections 33-24-05-450 through 33-24-05-474.

2. The owner or operator shall control air pollutant emissions from each waste management unit in accordance with standards specified in sections 33-24-05-454 through 33-24-05-457, as applicable to the waste management unit, except as provided for in subsection 3.

3. A tank, surface impoundment, or container is exempt from standards specified in sections 33-24-05-454 through 33-24-05-457, as applicable, provided that the waste management unit is one of the following:

   a. A tank, surface impoundment, or container for which all hazardous waste entering the unit has an average VO concentration at the point of waste origination of less than five hundred parts per million by weight. The average VO concentration shall be determined using the procedures specified in subsection 1 of section 33-24-05-453. The owner or operator shall review and update, as necessary, this determination at least once every twelve months following the date of the initial determination for the hazardous waste streams entering the unit.

   b. A tank, surface impoundment, or container for which the organic content of all the hazardous waste entering the waste management unit has been reduced by an organic destruction or removal process that achieves any one of the following conditions:

      (1) A process that removes or destroys the organics contained in the hazardous waste to a level such that the average VO concentration of the hazardous waste at the point of waste treatment is less than the exit concentration limit (C_t) established for the process. The average VO concentration of the hazardous waste at the point of waste treatment and the exit concentration limit for the process shall be determined using the procedures specified in subsection 2 of section 33-24-05-453.

      (2) A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency (R) for the process is equal to or greater than ninety-five percent, and the average VO concentration of the hazardous waste at the point of waste treatment is less than one hundred parts

per million weight. The organic reduction efficiency for the process and the average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in subsection 2 of section 33-24-05-453.

(3) A process that removes or destroys the organics contained in the hazardous waste to a level such that the actual organic mass removal rate (MR) for the process is equal to or greater than the required organic mass removal rate (RMR) established for the process. The required organic mass removal rate and the actual organic mass removal rate for the process shall be determined using the procedures specified in subsection 2 of section 33-24-05-453.

(4) A biological process that destroys or degrades the organics contained in the hazardous waste, such that either of the following conditions is met:

(a) The organic reduction efficiency (R) for the process is equal to or greater than ninety-five percent, and the organic biodegradation efficiency (R_{bio}) for the process is equal to or greater than ninety-five percent. The organic reduction efficiency and the organic biodegradation efficiency for the process shall be determined using the procedures specified in subsection 2 of section 33-24-05-453.

(b) The total actual organic mass biodegradation rate (MR_{bio}) for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate (RMR). The required organic mass removal rate and the actual organic mass biodegradation rate for the process shall be determined using the procedures specified in subsection 2 of section 33-24-05-453.

(5) A process that removes or destroys the organics contained in the hazardous waste and meets all of the following conditions:

(a) From the point of waste origination through the point where the hazardous waste enters the treatment process, the hazardous waste is managed continuously in waste management units which use air emission controls in accordance with the standards specified in sections 33-24-05-454 through 33-24-05-457, as applicable to the waste management unit.

(b) From the point of waste origination through the point where the hazardous waste enters the treatment process, any transfer of the hazardous waste is accomplished through continuous hard-piping or other closed system transfer that does not allow exposure of the waste to the atmosphere. The department considers a drain system that meets the requirements of 40 CFR part 63, subpart RR - national emission standards for individual drain systems to be a closed system.

(c) The average VO concentration of the hazardous waste at the point of waste treatment is less than the lowest average VO

concentration at the point of waste origination determined for each of the individual waste streams entering the process or five hundred parts per million weight, whichever value is lower. The average VO concentration of each individual waste stream at the point of waste origination shall be determined using the procedures specified in subsection 1 of section 33-24-05-453. The average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in subsection 2 of section 33-24-05-452.

(6) A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency (R) for the process is equal to or greater than ninety-five percent and the owner or operator certifies that the average VO concentration at the point of waste origination for each of the individual waste streams entering the process is less than ten thousand parts per million weight. The organic reduction efficiency for the process and the average VO concentration of the hazardous waste at the point of waste origination must be determined using the procedures specified in subsections 1 and 2 of section 33-24-05-453, respectively.

(7) A hazardous waste incinerator for which the owner or operator has either:

(a) Been issued a final permit under chapter 33-24-06 which implements the requirements of sections 33-24-05-144 through 33-24-05-159; or

(b) Has designed and operates the incinerator in accordance with the interim status requirements of subsection 5 of section 33-24-06-16.

(8) A boiler or industrial furnace for which the owner or operator has either:

(a) Been issued a final permit under chapter 33-24-06 which implements the requirements of sections 33-24-05-525 through 33-24-05-549; or

(b) Has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of subsection 5 of section 33-24-06-16.

(9) For the purpose of determining the performance of an organic destruction or removal process in accordance with the conditions in each of paragraphs 1 through 6, the owner or operator shall account for VO concentrations determined to be below the limit of detection of the analytical method by using the following VO concentration:

(a) If method 25D in 40 CFR part 60, appendix A is used for the analysis, one-half the blank value determined in the method.

(b) If any other analytical method is used, one-half the limit of detection established for the method.

c. A tank or surface impoundment used for biological treatment of hazardous waste in accordance with the requirements of paragraph 4 of subdivision b.

d. A tank, surface impoundment, or container for which all hazardous waste placed in the unit either:

(1) Meets the numerical concentration limits for organic hazardous constituents, applicable to the hazardous waste, as specified in sections 33-24-05-250 through 33-24-05-299 under table "Treatment Standards for Hazardous Waste" in section 33-24-05-280; or

(2) Has been treated by the treatment technology established by environmental protection agency for the waste in subsection 1 of section 33-24-05-282, or treated by an equivalent method of treatment approved by the department pursuant to subsection 2 of section 33-24-05-282.

e. A tank used for bulk feed of hazardous waste to a waste incinerator and all of the following conditions are met:

(1) The tank is located inside an enclosure vented to a control device that is designed and operated in accordance with all applicable requirements specified under 40 CFR part 61, subpart RR - national emission standards for benzene waste operations for a facility at which the total annual benzene quantity from the facility waste is equal to or greater than ten megagrams per year;

(2) The enclosure and control device serving the tank were installed and began operation prior to October 4, 1996; and

(3) The enclosure is designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical or electrical equipment; or to direct air flow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in section 5.0 to "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" annually.

4. The department may at any time perform or request that the owner or operator perform a waste determination for a hazardous waste managed in a tank, surface impoundment, or container exempted from using air emission controls under the provisions of this section as follows:

a. The waste determination for average VO concentration of a hazardous waste at the point of waste origination shall be performed using direct measurement in accordance with the applicable requirements of subsection

1 of section 33-24-05-453. The waste determination for a hazardous waste at the point of waste treatment shall be performed in accordance with the applicable requirements of subsection 2 of section 33-24-05-453.

b. In performing a waste determination pursuant to subparagraph a, the sample preparation and analysis shall be conducted as follows:

(1) In accordance with the method used by the owner or operator to perform the waste analysis, except in the case specified in paragraph 2.

(2) If the department determines that the method used by the owner or operator was not appropriate for the hazardous waste managed in the tank, surface impoundment, or container, then the department may choose an appropriate method.

c. In a case when the owner or operator is requested to perform the waste determination, the department may elect to have an authorized representative observe the collection of the hazardous waste samples used for the analysis.

d. In a case when the results of the waste determination performed or requested by the department do not agree with the results of a waste determination performed by the owner or operator using knowledge of the waste, then the results of the waste determination performed in accordance with the requirements of subdivision a shall be used to establish compliance with the requirements of sections 33-24-05-450 through 33-24-05-474.

e. In a case when the owner or operator has used an averaging period greater than one hour for determining the average VO concentration of a hazardous waste at the point of waste origination, the department may elect to establish compliance with sections 33-24-05-450 through 33-24-05-474 by performing or requesting that the owner or operator perform a waste determination using direct measurement based on waste samples collected within a one-hour period as follows:

(1) The average VO concentration of the hazardous waste at the point of waste origination shall be determined by direct measurement in accordance with the requirements of subsection 1 of section 33-24-05-453.

(2) Results of the waste determination performed or requested by the department showing that the average VO concentration of the hazardous waste at the point of waste origination is equal to or greater than five hundred parts per million weight shall constitute noncompliance with sections 33-24-05-450 through 33-24-05-474 except in a case as provided for in paragraph 3.

(3) For the case when the average VO concentration of the hazardous waste at the point of waste origination previously has been determined by the owner or operator using an averaging period greater than one hour to be less than five hundred parts per million weight but because of normal operating process variations the VO

concentration of the hazardous waste determined by direct measurement for any given one-hour period may be equal to or greater than five hundred parts per million weight, information that was used by the owner or operator to determine the average VO concentration of the hazardous waste (for example, test results, measurements, calculations, and other documentation) and recorded in the facility records in accordance with the requirements of subsection 1 of section 33-24-05-453 and section 33-24-05-459 shall be considered by the department together with the results of the waste determination performed or requested by the department in establishing compliance with sections 33-24-05-450 through 33-24-05-474.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-453. ~~[Reserved]~~ Waste determination procedures.

1. Waste determination procedure to determine average volatile organic (VO) concentration of a hazardous waste at the point of waste origination.

   a. An owner or operator shall determine the average VO concentration at the point of waste origination for each hazardous waste placed in a waste management unit exempted under the provisions of subdivision a of subsection 2 of section 33-24-05-452 from using air emission controls in accordance with standards specified in sections 33-24-05-454 through 33-24-05-457, as applicable to the waste management unit.

   b. The average VO concentration of a hazardous waste at the point of waste origination may be determined in accordance with the procedures specified in paragraphs 1 through 3.

      (1) The average VO concentration of a hazardous waste at the point of waste origination must be determined using either direct measurement as specified in paragraph 2 or by knowledge as specified in paragraph 3.

      (2) Direct measurement to determine average VO concentration of a hazardous waste at the point of waste origination.

         (a) Identification. The owner or operator must identify and record the point of waste origination for the hazardous waste.

         (b) Sampling. Samples of the hazardous waste stream shall be collected at the point of waste origination in a manner such that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.

            [1] The averaging period to be used for determining the average VO concentration for the hazardous waste stream

on a mass-weighted average basis must be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but shall not exceed one year.

[2] A sufficient number of samples, but no less than four samples, must be collected for the hazardous waste stream to represent the complete range of compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the source or process generating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.

[3] All samples nmust be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan must describe the procedure by which representative samples of the hazardous waste stream are collected such that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan must be maintained onsite in the facility operating records. An example of an acceptable sampling plan includes a plan incorporating sample collection and handling procedures in accordance with the requirements specified in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" SW-846, as incorporated by reference in section 33-24-01-05, or method 25D in 40 CFR part 60, appendix A.

(c) Analysis. Each collected sample must be prepared and analyzed in accordance with one or more of the methods listed in items 1 through 9, including appropriate quality assurance and quality control checks and use of target compounds for calibration. If method 25D in 40 CFR part 60, appendix A is not used, then one or more methods should be chosen that are appropriate to ensure that the waste determination accounts for and reflects all organic compounds in the waste with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) [which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/meters^3] at twenty-five degrees Celsius. Each of the analytical methods listed in items 2 through 7 has an associated list of approved chemical compounds, for which the department considers the method appropriate for measurement. If an owner or operator uses environmental protection agency method 624, 625, 1624, or 1625 in 40 CFR part 136, appendix A to analyze one or more compounds that are not on that method's published list, the alternative test procedure contained in 40 CFR part 136.4 and 136.5 must be followed. If an owner or operator uses environmental protection agency method 8260(B)

or 8270(C) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05 to analyze one or more compounds that are not on that method's published list, the procedures in item 8 must be followed. At the owner's or operator's discretion, the concentration of each individual chemical constituent measured in the waste by a method other than method 25D may be corrected to the concentration had it been measured using method 25D by multiplying the measured concentration by the constituent-specific adjustment factor (f_{m25D}) as specified in subparagraph c. Constituent-specific adjustment factors (f_{m25D}) can be obtained by contacting the Waste and Chemical Processes Group, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

[1] Method 25D in 40 CFR part 60, appendix A.

[2] Method 624 in 40 CFR part 136, appendix A.

[3] Method 625 in 40 CFR part 136, appendix A. Perform corrections to the compounds for which the analysis is being conducted based on the "accuracy as recovery" using the factors in table 7 of the method.

[4] Method 1624 in 40 CFR part 136, appendix A.

[5] Method 1625 in 40 CFR part 136, appendix A.

[6] Method 8260(B) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05. Maintain a formal quality assurance program consistent with the requirements of method 8260(B). The quality assurance program shall include the following elements:

[a] Documentation of site-specific procedures to minimize the loss of compounds due to volatilization, biodegradation, reaction, or sorption during the sample collection, storage, preparation, introduction, and analysis steps.

[b] Measurement of the overall accuracy and precision of the specific procedures.

[7] Method 8270(C) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05. Maintain a formal quality assurance program consistent with the requirements of method 8270(C). The quality assurance program shall include the following elements:

[a] Documentation of site-specific procedures to minimize the loss of compounds due to volatilization, biodegradation, reaction, or

sorption during the sample collection, storage, and preparation steps.

[b] Measurement of the overall accuracy and precision of the specific procedures.

[8] Any other environmental protection agency standard method that has been validated in accordance with "Alternative Validation Procedure for Environmental Protection Agency Waste and Wastewater Methods", 40 CFR part 63, appendix D. As an alternative, other environmental protection agency standard methods may be validated by the procedure specified in item 9.

[9] Any other analysis method that has been validated in accordance with the procedures specified in section 5.1 or 5.3, and the corresponding calculations in section 6.1 or section 6.3, of method 301 in 40 CFR part 63, appendix A. The data are acceptable if they meet the criteria specified in section 6.1.5 or 6.3.3 of method 301. If correction is required under section 6.3.3 of method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of method 301 are not required.

(d) Calculations. The average VO concentration ($\overline{C}$) on a mass-weighted basis must be calculated by using the results for all samples analyzed in accordance with subparagraph c and the following equation:

$$\overline{C} = \frac{1}{Q_T} \times \sum_{i=1}^{n} (Q_i \times C_i)$$

where:

$\overline{C}$ = Average VO concentration of the hazardous waste at the point of waste origination on a mass-weighted basis, parts per million weight.

I = Individual sample "i" of the hazardous waste.

n = Total number of samples of the hazardous waste collected (at least four) for the averaging period (not to exceed one).

Q_i = Mass quantity of hazardous waste stream represented by C_i, kilograms per hour.

Q_T = Total mass quantity of hazardous waste during the averaging period, kilograms per hour.

C_i = Measured VO concentration of sample "i" as determined in accordance with the requirements of subparagraph c, parts per million weight.

(3) Use of owner or operator knowledge to determine average VO concentration of a hazardous waste at the point of waste origination.

(a) Documentation shall be prepared that presents the information used as the basis for the owner's or operator's knowledge of the hazardous waste stream's average VO concentration. Examples of information that may be used as the basis for knowledge include: material balances for the source or process generating the hazardous waste stream; constituent-specific chemical test data for the hazardous waste stream from previous testing that are still applicable to the current waste stream; previous test data for other locations managing the same type of waste stream; or other knowledge based on information included in manifests, shipping papers, or waste certification notices.

(b) If test data are used as the basis for knowledge, then the owner or operator shall document the test method, sampling protocol, and the means by which sampling variability and analytical variability are accounted for in the determination of the average VO concentration. For example, an owner or operator may use organic concentration test data for the hazardous waste stream that are validated in accordance with method 301 in 40 CFR part 63, appendix A as the basis for knowledge of the waste.

(c) An owner or operator using chemical constituent-specific concentration test data as the basis for knowledge of the hazardous waste may adjust the test data to the corresponding average VO concentration value which would have been obtained had the waste samples been analyzed using method 25D in 40 CFR part 60, appendix A. To adjust these data, the measured concentration for each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor (f_{m25D}).

(d) In the event that the department and the owner or operator disagree on a determination of the average VO concentration for a hazardous waste stream using knowledge, then the results from a determination of average VO concentration using direct measurement as specified in paragraph 2 must be used to establish compliance with the applicable requirements in sections 33-24-05-450 through 33-24-05-474. The department may perform or request that the owner or operator perform this determination using direct measurement.

2. Waste determination procedures for treated hazardous waste.

a. An owner or operator shall perform the applicable waste determination for

each treated hazardous waste placed in a waste management unit exempted under the provisions of subdivision b of subsection 3 of section 33-24-05-452 from using air emission controls in accordance with standards specified in sections 33-24-05-454 through 33-24-05-457, as applicable to the waste management unit.

b. The waste determination for a treated hazardous waste must be performed in accordance with the procedures specified in paragraphs 1 through 8, as applicable to the treated hazardous waste.

(1) The owner or operator shall designate and record the specific provision in subdivision b of subsection 3 of section 33-24-05-453 under which the waste determination is being performed. The waste determination for the treated hazardous waste shall be performed using the applicable procedures specified in paragraphs 2 through 8.

(2) Procedure to determine the average VO concentration of a hazardous waste at the point of waste treatment.

(a) Identification. The owner or operator must identify and record the point of waste treatment for the hazardous waste.

(b) Sampling. Samples of the hazardous waste stream shall be collected at the point of waste treatment in a manner such that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.

[1] The averaging period to be used for determining the average VO concentration for the hazardous waste stream on a mass-weighted average basis shall be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but shall not exceed one .

[2] A sufficient number of samples, but no less than four samples, must be collected for the hazardous waste stream to represent the complete range of compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the process treating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.

[3] All samples must be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan must describe the procedure by which representative samples of the hazardous waste stream are collected such that a minimum loss of organics occurs throughout the

sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan must be maintained onsite in the facility operating records. An example of an acceptable sampling plan includes a plan incorporating sample collection and handling procedures in accordance with the requirements specified in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05, or method 25D in 40 CFR part 60, appendix A.

(c) Analysis. Each collected sample must be prepared and analyzed in accordance with one or more of the methods listed in items 1 through 9, including appropriate quality assurance and quality control checks and use of target compounds for calibration. If method 25D in 40 CFR part 60, appendix A is not used, then one or more methods should be chosen that are appropriate to ensure that the waste determination accounts for and reflects all organic compounds in the waste with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) [which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/meters^3] at 25 degrees Celsius. Each of the analytical methods listed in items 2 through 7 has an associated list of approved chemical compounds, for which the department considers the method appropriate for measurement. If an owner or operator uses environmental protection agency method 624, 625, 1624, or 1625 in 40 CFR part 136, appendix A to analyze one or more compounds that are not on that method's published list, the alternative test procedure contained in 40 CFR Part 136.4 and 136.5 must be followed. If an owner or operator uses environmental protection agency method 8260(B) or 8270(C) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05 to analyze one or more compounds that are not on that method's published list, the procedures in item 8 must be followed. At the owner's or operator's discretion, the concentration of each individual chemical constituent measured in the waste by a method other than method 25D may be corrected to the concentration had it been measured using method 25D by multiplying the measured concentration by the constituent-specific adjustment factor (f_{m25D}) as specified in subparagraph a of paragraph 3 of subdivision b of subsection 1. Constituent-specific adjustment factors (f_{m25D}) can be obtained by contacting the Waste and Chemical Processes Group, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

[1] Method 25D in 40 CFR part 60, appendix A.

[2] Method 624 in 40 CFR part 136, appendix A.

[3] Method 625 in 40 CFR part 136, appendix A. Perform corrections to the compounds for which the analysis is

being conducted based on the "accuracy as recovery" using the factors in table 7 of the method.

[4] Method 1624 in 40 CFR part 136, appendix A.

[5] Method 1625 in 40 CFR part 136, appendix A.

[6] Method 8260(B) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05. Maintain a formal quality assurance program consistent with the requirements of method 8260(B). The quality assurance program shall include the following elements:

[a] Documentation of site-specific procedures to minimize the loss of compounds due to volatilization, biodegradation, reaction, or sorption during the sample collection, storage, preparation, introduction, and analysis steps.

[b] Measurement of the overall accuracy and precision of the specific procedures.

[7] Method 8270(C) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846 as incorporated by reference in section 33-24-01-05. Maintain a formal quality assurance program consistent with the requirements of method 8270(C). The quality assurance program must include the following elements:

[a] Documentation of site-specific procedures to minimize the loss of compounds due to volatilization, biodegradation, reaction, or sorption during the sample collection, storage, preparation, introduction, and analysis steps.

[b] Measurement of the overall accuracy and precision of the specific procedures.

[8] Any other environmental protection agency standard method that has been validated in accordance with "Alternative Validation Procedure for Environmental Protection Agency Waste and Wastewater Methods", 40 CFR part 63, appendix D. As an alternative, other environmental protection agency standard methods may be validated by the procedure specified in subsubparagraph 9.

[9] Any other analysis method that has been validated in accordance with the procedures specified in section 5.1 or 5.3, and the corresponding calculations in section 6.1 or 6.3, of method 301 in 40 CFR part 63, appendix A. The data are acceptable if they meet the criteria specified in section 6.1.5 or 6.3.3 of method 301. If

correction is required under section 6.3.3 of method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of method 301 are not required.

(d) Calculations. The average VO concentration ($\overline{C}$) on a mass-weighted basis must be calculated by using the results for all samples analyzed in accordance with subparagraph c and the following equation:

$$\overline{C} = \frac{1}{Q_T} \times \sum_{i=1}^{n} (Q_i \times C_i)$$

where:

$\overline{C}$ = Average VO concentration of the hazardous waste at the point of waste treatment on a mass-weighted basis, parts per million weight.

I = Individual sample "i" of the hazardous waste.

n = Total number of samples of the hazardous waste collected (at least four) for the averaging period (not to exceed one year).

Q_i = Mass quantity of hazardous waste stream represented by C_i, kilograms per hour.

Q_T = Total mass quantity of hazardous waste during the averaging period, kilograms per hour.

C_i = Measured VO concentration of sample "i" as determined in accordance with the requirements of subparagraph c, parts per million weight.

(3) Procedure to determine the exit concentration limit (C_t) for a treated hazardous waste.

(a) The point of waste origination for each hazardous waste treated by the process at the same time must be identified.

(b) If a single hazardous waste stream is identified in subparagraph a, then the exit concentration limit (C_t) must be five hundred parts per million weight.

(c) If more than one hazardous waste stream is identified in subparagraph a, then the average VO concentration of each hazardous waste stream at the point of waste origination must be determined in accordance with the requirements of subsection 1. The exit concentration limit (C_t) must be calculated by using the results determined for each individual hazardous waste stream and the following equation:

$$C_t = \frac{\sum_{x=1}^{m} (Q_x \times \overline{C_x}) + \sum_{y=1}^{n} (Q_y \times 500 \text{ ppmw})}{\sum_{x=1}^{m} Q_x + \sum_{y=1}^{n} Q_y}$$

where:

C_t = Exit concentration limit for treated hazardous waste, parts per million weight.

x = Individual hazardous waste stream "x" that has an average VO concentration less than five hundred parts per million weight at the point of waste origination as determined in accordance with the requirements of paragraph 1 of subdivision b of subsection 1.

y = Individual hazardous waste stream "y" that has an average VO concentration equal to or greater than five hundred parts per million weight at the point of waste origination as determined in accordance with the requirements of paragraph 1 of subdivision b of subsection 1.

m = Total number of "x" hazardous waste streams treated by process.

n = Total number of "y" hazardous waste streams treated by process.

Q_x = Annual mass quantity of hazardous waste stream "x", kg/yr.

Q_y = Annual mass quantity of hazardous waste stream "y", kg/yr.

$\overline{C}_x$ = Average VO concentration of hazardous waste stream "x" at the point of waste origination as determined in accordance with the requirements of paragraph 1 of subdivision b of subsection 1, parts per million weight.

(4) Procedure to determine the organic reduction efficiency (R) for a treated hazardous waste.

(a) The organic reduction efficiency (R) for a treatment process must be determined based on results for a minimum of three consecutive runs.

(b) All hazardous waste streams entering the treatment process and all hazardous waste streams exiting the treatment process must be identified. The owner or operator shall prepare a sampling plan for measuring these streams that accurately reflects the retention time of the hazardous waste in the process.

(c) For each run, information must be determined for each hazardous waste stream identified in subparagraph b using the following procedures:

[1] The mass quantity of each hazardous waste stream entering the process (Q_b) and the mass quantity of each hazardous waste stream exiting the process (Q_a) must be determined.

[2] The average VO concentration at the point of waste origination of each hazardous waste stream entering the process ($\overline{C}_b$) during the run must be determined in accordance with the requirements of paragraph 2 of subdivision b of subsection 1. The average VO concentration at the point of waste treatment of each waste stream exiting the process ($\overline{C}_a$) during the run must be determined in accordance with the requirements of paragraph 2.

(d) The waste volatile organic mass flow entering the process (E_b) and the waste volatile organic mass flow exiting the process (E_a) must be calculated by using the results determined in accordance with subparagraph c and the following equations:

$$E_b = \frac{1}{10^6} \sum_{j=1}^{m} (Q_{bj} \times \overline{C_{bj}})$$

$$E_a = \frac{1}{10^6} \sum_{j=1}^{m} (Q_{aj} \times \overline{C_{aj}})$$

where:

E_a = Waste volatile organic mass flow exiting process, kilograms per hour.

E_b = Waste volatile organic mass flow entering process, kilograms per hour.

m = Total number of runs (at least three)

j = Individual run "j".

Q_b = Mass quantity of hazardous waste entering process during run "j", kilograms per hour.

Q_a = Average mass quantity of hazardous waste exiting process during run "j," kilograms per hour.

$\bar{C}_a$ = Average VO concentration of hazardous waste exiting process during run "j" as determined in accordance with the requirements of paragraph 2, parts per million weight.

$\bar{C}_b$ = Average VO concentration of hazardous waste entering process during run "j" as determined in accordance with the requirements of paragraph 2 of subdivision b of subsection 1, parts per million weight.

(e) The organic reduction efficiency of the process shall be calculated by using the results determined in accordance with subparagraph d and the following equation:

$$R = \frac{E_b - E_a}{E_b} \times 100\%$$

where:

R = Organic reduction efficiency, percent.

E_b = Waste volatile organic mass flow entering process as determined in accordance with the requirements of subparagraph d, kilograms per hour.

E_a = Waste volatile organic mass flow exiting process as determined in accordance with the requirements of subparagraph d, kilograms per hour.

(5) Procedure to determine the organic biodegradation efficiency (R_{bio}) for a treated hazardous waste.

(a) The fraction of organics biodegraded (F_{bio}) must be determined using the procedure specified in 40 CFR part 63, appendix C.

(b) The R_{bio} must be calculated by using the following equation:

$$R_{bio} = F_{bio} \times 100\%$$

where:

R_{bio} = Organic biodegradation efficiency, percent.

F_{bio} = Fraction of organic biodegraded as determined in accordance with the requirements of subparagraph a.

(6) Procedure to determine the required organic mass removal rate (RMR) for a treated hazardous waste.

(a) All of the hazardous waste streams entering the treatment process must be identified.

(b) The average VO concentration of each hazardous waste stream at the point of waste origination must be determined in accordance with the requirements of paragraph 1 of subdivision b of subsection 1.

(c) For each individual hazardous waste stream that has an average VO concentration equal to or greater than five hundred parts per million weight at the point of waste origination, the average volumetric flow rate and the density of the hazardous waste stream at the point of waste origination must be determined.

(d) The RMR must be calculated by using the average VO concentration, average volumetric flow rate, and density determined for each individual hazardous waste stream, and the following equation:

$$RMR = \sum_{y=1}^{n} [V_y \times k_y \times \frac{(\overline{C_y} - 500 \text{ ppmw})}{10^6}]$$

where:

RMR = Required organic mass removal rate, kilograms per hour.

y = Individual hazardous waste stream "y" that has an average VO concentration equal to or greater than five hundred parts per million weight at the point of waste origination as determined in accordance with the requirements of paragraph 1 of subdivision b of subsection 1.

n = Total number of "y" hazardous waste streams treated by process.

V_y = Average volumetric flow rate of hazardous waste stream "y" at the point of waste origination, meters^3/hr.

k_y = Density of hazardous waste stream "y", kg/meters^3

$\overline{C}_y$ = Average VO concentration of hazardous waste stream "y" at the point of waste origination as determined in accordance with the requirements of paragraph 1 of subdivision b of subsection 1, parts per million weight.

(7) Procedure to determine the actual organic mass removal rate (MR) for a treated hazardous waste.

(a) The MR shall be determined based on results for a minimum of three consecutive runs. The sampling time for each run must be one hour.

(b) The waste volatile organic mass flow entering the process (E_b) and the waste volatile organic mass flow exiting the process (E_a) must be determined in accordance with the requirements of subparagraph d of paragraph 4.

(c) The MR must be calculated by using the mass flow rate determined in accordance with the requirements of subparagraph b and the following equation:

$$MR = E_b - E_a$$

where:

MR = Actual organic mass removal rate, kilograms per hour.

E_b = Waste volatile organic mass flow entering process as determined in accordance with the requirements of subparagraph d of paragraph 4, kilograms per hour.

E_a = Waste volatile organic mass flow exiting process as determined in accordance with the requirements of subparagraph d of paragraph 4, kilograms per hour.

(8) Procedure to determine the actual organic mass biodegradation rate (MR_{bio}) for a treated hazardous waste.

(a) The MR_{bio} must be determined based on results for a minimum of three consecutive runs. The sampling time for each run must be one hour.

(b) The waste organic mass flow entering the process (E_b) must be determined in accordance with the requirements of subparagraph d of paragraph 4.

(c) The fraction of organic biodegraded (F_{bio}) shall be determined using the procedure specified in 40 CFR part 63, appendix C.

(d) The MR_{bio} must be calculated by using the mass flow rates and fraction of organic biodegraded determined in accordance with the requirements of subparagraphs b and c, respectively, and the following equation:

$$MR_{bio} = E_b \times F_{bio}$$

where:

MR_{bio} = Actual organic mass biodegradation rate, kilograms per hour.

E_b = Waste organic mass flow entering process as determined in accordance with the requirements of subparagraph d of paragraph 4, kilograms per hour.

F_{bio} = Fraction of organic biodegraded as determined in accordance with the requirements of subparagraph c.

3. Procedure to determine the maximum organic vapor pressure of a hazardous waste in a tank.

a. An owner or operator shall determine the maximum organic vapor pressure for each hazardous waste placed in a tank using tank level 1 controls in accordance with standards specified in subsection 3 of section 33-24-05-454.

b. The maximum organic vapor pressure of the hazardous waste may be determined in accordance with the procedures specified below:

(1) An owner or operator shall determine the maximum organic vapor pressure for each hazardous waste placed in a tank using tank level 1 controls in accordance with the standards specified in section 33-24-05-454.

(2) An owner or operator shall use either direct measurement as specified in paragraph 3 or knowledge of the waste as specified by paragraph 4 to determine the maximum organic vapor pressure which is representative of the hazardous waste composition stored or treated in the tank.

(3) Direct measurement to determine the maximum organic vapor pressure of a hazardous waste.

(a) Sampling. A sufficient number of samples must be collected to be representative of the waste contained in the tank. All samples must be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan must describe the procedure by which representative samples of the hazardous waste are collected such that a minimum loss of organics occurs throughout the sample collection and handling process and by which sample integrity is maintained. A copy of the written sampling plan must be maintained onsite in the facility operating records. An example of an acceptable sampling plan includes a plan incorporating sample collection and handling procedures in accordance with the requirements specified in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, as incorporated by reference in section 33-24-01-05, or method 25D in 40 CFR part 60, appendix A.

(b) Analysis. Any appropriate one of the following methods may be used to analyze the samples and compute the maximum organic vapor pressure of the hazardous waste:

[1] Method 25E in 40 CFR part 60 appendix A;

[2] Methods described in American Petroleum Institute Publication 2517, Third Edition, February 1989, "Evaporative Loss from External Floating-Roof Tanks", as incorporated by reference in section 33-24-01-05;

[3] Methods obtained from standard reference texts;

[4] ASTM method 2879-92, as incorporated by reference in section 33-24-01-05; or

[5] Any other method approved by the department.

(4) Use of knowledge to determine the maximum organic vapor pressure of the hazardous waste. Documentation must be prepared and recorded that presents the information used as the basis for the owner's or operator's knowledge that the maximum organic vapor pressure of the hazardous waste is less than the maximum vapor pressure limit listed in paragraph 1 of subdivision a of subsection 2 of section 33-24-05-454 for the applicable tank design capacity category. An example of information that may be used is documentation that the hazardous waste is generated by a process for which at other locations it previously has been determined by direct measurement that the waste maximum organic vapor pressure is less than the maximum vapor pressure limit for the appropriate tank design capacity category.

4. The procedure for determining no detectable organic emissions for the purpose of complying with sections 33-24-05-450 through 33-24-05-474 must be conducted in accordance with the procedures specified below:

a. The test must be conducted in accordance with the procedures specified in method 21 of 40 CFR part 60, appendix A. Each potential leak interface (for example, a location where organic vapor leakage could occur) on the cover and associated closure devices must be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to: the interface of the cover and its foundation mounting; the periphery of any opening on the cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure relief valve.

b. The test must be performed when the unit contains a hazardous waste having an organic concentration representative of the range of concentrations for the hazardous waste expected to be managed in the unit. During the test, the cover and closure devices must be secured in the closed position.

c. The detection instrument must meet the performance criteria of method 21 of 40 CFR part 60, appendix A, except the instrument response factor criteria in section 3.1.2(a) of method 21 must be for the average composition of the organic constituents in the hazardous waste placed in the waste management unit, not for each individual organic constituent.

d. The detection instrument must be calibrated before use on each day of its

use by the procedures specified in method 21 of 40 CFR part 60, appendix A.

e. Calibration gases must be as follows:

(1) Zero air (less than ten parts per million volume hydrocarbon in air), and

(2) A mixture of methane in air at a concentration of approximately, but less than ten thousand parts per million volume.

f. The background level must be determined according to the procedures in method 21 of 40 CFR part 60, appendix A.

g. Each potential leak interface must be checked by traversing the instrument probe around the potential leak interface as close to the interface as possible, as described in method 21 of 40 CFR part 60, appendix A. In the case when the configuration of the cover or closure device prevents a complete traverse of the interface, all accessible portions of the interface must be sampled. In the case when the configuration of the closure device prevents any sampling at the interface and the device is equipped with an enclosed extension or horn (for example, some pressure relief devices), the instrument probe inlet must be placed at approximately the center of the exhaust area to the atmosphere.

h. The arithmetic difference between the maximum organic concentration indicated by the instrument and the background level must be compared with the value of five hundred parts per million volume except when monitoring a seal around a rotating shaft that passes through a cover opening, in which case the comparison shall be as specified in subdivision 1. If the difference is less than five hundred parts per million volume, then the potential leak interface is determined to operate with no detectable organic emissions.

i. For the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level must be compared with the value of ten thousand parts per million weight. If the difference is less than ten thousand parts per million weight, then the potential leak interface is determined to operate with no detectable organic emissions.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-454. ~~[Reserved]~~ Standards - Tanks.

1. The provisions of this section apply to the control of air pollutant emissions from tanks for which subsection 2 of section 33-24-05-452 references the use of this section for such air emission control.

2. The owner or operator shall control air pollutant emissions from each tank subject to this section in accordance with the following requirements as applicable:

a. For a tank that manages hazardous waste that meets all of the conditions specified in paragraphs 1 through 3, the owner or operator shall control air pollutant emissions from the tank in accordance with the tank level 1 controls specified in subsection 3 or the tank level 2 controls specified in subsection 4.

(1) The hazardous waste in the tank has a maximum organic vapor pressure which is less than the maximum organic vapor pressure limit for the tank's design capacity category as follows:

(a) For a tank design capacity equal to or greater than 5330 feet^3 [151 meters^3], the maximum organic vapor pressure limit for the tank is 5.2 kilopascals.

(b) For a tank design capacity equal to or greater than 2650 feet^3 [75 meters^3] but less than 5330 feet^3 [151 meters^3], the maximum organic vapor pressure limit for the tank is 27.6 kilopascals.

(c) For a tank design capacity less than 2650 ft^3 (75 meters^3), the maximum organic vapor pressure limit for the tank is 76.6 kilopascals.

(2) The hazardous waste in the tank is not heated by the owner or operator to a temperature that is greater than the temperature at which the maximum organic vapor pressure of the hazardous waste is determined for the purpose of complying with paragraph 1.

(3) The hazardous waste in the tank is not treated by the owner or operator using a waste stabilization process, as defined in section 33-24-05-451.

b. For a tank that manages hazardous waste that does not meet all of the conditions specified in paragraphs 1 through 3, the owner or operator shall control air pollutant emissions from the tank by using tank level 2 controls in accordance with the requirements of subsection 4. Examples of tanks required to use tank level 2 controls include: a tank used for a waste stabilization process; and a tank for which the hazardous waste in the tank has a maximum organic vapor pressure that is equal to or greater than the maximum organic vapor pressure limit for the tank's design capacity category as specified in paragraph 1.

3. Owners and operators controlling air pollutant emissions from a tank using tank level 1 controls shall meet the requirements specified in subdivisions a through d:

a. The owner or operator shall determine the maximum organic vapor pressure for a hazardous waste to be managed in the tank using tank level 1 controls before the first time the hazardous waste is placed in the tank. The maximum organic vapor pressure must be determined using the

procedures specified in subsection 3 of section 33-24-05-453. Thereafter, the owner or operator shall perform a new determination whenever changes to the hazardous waste managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank design capacity category specified in paragraph 1 of subdivision a of subsection 2, as applicable to the tank.

b. The tank must be equipped with a fixed roof designed to meet the following specifications:

(1) The fixed roof and its closure devices must be designed to form a continuous barrier over the entire surface area of the hazardous waste in the tank. The fixed roof may be a separate cover installed on the tank (for example, a removable cover mounted on an open-top tank) or may be an integral part of the tank structural design (for example, a horizontal cylindrical tank equipped with a hatch).

(2) The fixed roof must be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall.

(3) Each opening in the fixed roof must be either:

(a) Equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device; or

(b) Connected by a closed-vent system that is vented to a control device. The control device must remove or destroy organics in the vent stream, and it shall be operating whenever hazardous waste is managed in the tank.

(4) The fixed roof and its closure devices must be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout their intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices must include: organic vapor permeability, the effects of any contact with the hazardous waste or its vapors managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.

c. Whenever a hazardous waste is in the tank, the fixed roof must be installed with each closure device secured in the closed position except as follows:

(1) Opening of closure devices or removal of the fixed roof is allowed at the following times:

(a) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.

(b) To remove accumulated sludge or other residues from the bottom of the tank.

(2) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the tank internal pressure in accordance with the tank design specifications. The device must be designed to operate with no detectable organic emissions when the device is secured in the closed position. The settings at which the device opens must tablished such that the device remains in the closed position whenever the tank internal pressure is within the internal pressure operating range determined by the owner or operator based on the tank manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the tank internal pressure exceeds the internal pressure operating range for the tank as a result of loading operations or diurnal ambient temperature fluctuations.

(3) Opening of a safety device, as defined in section 33-24-05-451, is allowed at any time conditions require doing so to avoid an unsafe condition.

d. The owner or operator shall inspect the air emission control equipment in accordance with the following requirements.

(1) The fixed roof and its closure devices must sually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(2) The owner or operator shall perform an initial inspection of the fixed roof and its closure devices on or before the date that the tank becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year except under the special conditions provided for in subsection 12.

(3) In the event that a defect is detected, the owner or operator shall

repair the defect in accordance with the requirements of subsection 11.

(4) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 2 of section 33-24-05-459.

4. Owners and operators controlling air pollutant emissions from a tank using tank level 2 controls shall use one of the following tanks:

a. A fixed-roof tank equipped with an internal floating roof in accordance with the requirements specified in subsection 5;

b. A tank equipped with an external floating roof in accordance with the requirements specified in subsection 6;

c. A tank vented through a closed-vent system to a control device in accordance with the requirements specified in subsection 7;

d. A pressure tank designed and operated in accordance with the requirements specified in subsection 8; or

e. A tank located inside an enclosure that is vented through a closed-vent system to an enclosed combustion control device in accordance with the requirements specified in subsection 9.

5. The owner or operator who controls air pollutant emissions from a tank using a fixed-roof with an internal floating roof shall meet the requirements specified in subdivisions a through c.

a. The tank must be equipped with a fixed roof and an internal floating roof in accordance with the following requirements:

(1) The internal floating roof must be designed to float on the liquid surface except when the floating roof must be supported by the leg supports.

(2) The internal floating roof must be equipped with a continuous seal between the wall of the tank and the floating roof edge that meets either of the following requirements:

(a) A single continuous seal that is either a liquid-mounted seal or a metallic shoe seal, as defined in section 33-24-05-451; or

(b) Two continuous seals mounted one above the other. The lower seal may be a vapor-mounted seal.

(3) The internal floating roof must meet the following specifications:

(a) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

(b) Each opening in the internal floating roof must be equipped with a gasketed cover or a gasketed lid except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains.

(c) Each penetration of the internal floating roof for the purpose of sampling must have a slit fabric cover that covers at least ninety percent of the opening.

(d) Each automatic bleeder vent and rim space vent must be gasketed.

(e) Each penetration of the internal floating roof that allows for passage of a ladder must have a gasketed sliding cover.

(f) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof must have a flexible fabric sleeve seal or a gasketed sliding cover.

b. The owner or operator shall operate the tank in accordance with the following requirements:

(1) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and must be completed as soon as practical.

(2) Automatic bleeder vents are to be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.

(3) Prior to filling the tank, each cover, access hatch, gauge float well, or lid on any opening in the internal floating roof must be bolted or fastened closed (for example, no visible gaps). Rim space vents are to be set to open only when the internal floating roof is not floating or when the pressure beneath the rim exceeds the manufacturer's recommended setting.

c. The owner or operator shall inspect the internal floating roof in accordance with the procedures specified as follows:

(1) The floating roof and its closure devices must be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to: the internal floating roof is not floating on the surface of the liquid inside the tank; liquid has accumulated on top of the internal floating roof; any portion of the roof seals have detached from the roof rim; holes, tears, or other openings are visible in the seal fabric; the gaskets no longer close off the hazardous waste surface from the atmosphere; or the slotted membrane has more than ten percent open area.

(2) The owner or operator shall inspect the internal floating roof components as follows except as provided in paragraph 3:

(a) Visually inspect the internal floating roof components through openings on the fixed-roof (for example, manholes and roof hatches) at least once every twelve months after initial fill; and

(b) Visually inspect the internal floating roof, primary seal, secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every ten years.

(3) As an alternative to performing the inspections specified in paragraph 2 for an internal floating roof equipped with two continuous seals mounted one above the other, the owner or operator may visually inspect the internal floating roof, primary and secondary seals, gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every five years.

(4) Prior to each inspection required by paragraph 2 or 3, the owner or operator must notify the department in advance of each inspection to provide the department with the opportunity to have an observer present during the inspection. The owner or operator shall notify the department of the date and location of the inspection as follows:

(a) Prior to each visual inspection of an internal floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the owner or operator so that it is received by the department at least thirty calendar days before refilling the tank except when an inspection is not planned as provided for in subparagraph b.

(b) When a visual inspection is not planned and the owner or operator could not have known about the inspection thirty calendar days before refilling the tank, the owner or operator shall notify the department as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that it is received by the department at least seven calendar days before refilling the tank.

(5) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of subsection 11.

(6) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 2 of section 33-24-05-459.

6. The owner or operator who controls air pollutant emissions from a tank using an external floating roof shall meet the requirements specified in

subdivisions a through c.

a. The owner or operator shall design the external floating roof in accordance with the following requirements:

(1) The external floating roof must be designed to float on the liquid surface except when the floating roof must be supported by the leg supports.

(2) The floating roof must be equipped with two continuous seals, one above the other, between the wall of the tank and the roof edge. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.

(a) The primary seal must be a liquid-mounted seal or a metallic shoe seal, as defined in section 33-24-05-451. The total area of the gaps between the tank wall and the primary seal may not exceed 25.5 inches^2 per foot [212 square centimeters per meter] of tank diameter, and the width of any portion of these gaps may not exceed 1.5 inches [3.8 centimeters]. If a metallic shoe seal is used for the primary seal, the metallic shoe seal must be designed so that one end extends into the liquid in the tank and the other end extends a vertical distance of at least sixty-one centimeters above the liquid surface.

(b) The secondary seal must be mounted above the primary seal and cover the annular space between the floating roof and the wall of the tank. The total area of the gaps between the tank wall and the secondary seal may not exceed 2.1 inches^2 per foot [21.2 square centimeters per meter] of tank diameter, and the width of any portion of these gaps may not exceed 0.5 inches [1.3 centimeters].

(3) The external floating roof must meet the following specifications:

(a) Except for automatic bleeder vents (vacuum breaker vents) and rim space vents, each opening in a noncontact external floating roof must provide a projection below the liquid surface.

(b) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof must be equipped with a gasketed cover, seal, or lid.

(c) Each access hatch and each gauge float well must be equipped with a cover designed to be bolted or fastened when the cover is secured in the closed position.

(d) Each automatic bleeder vent and each rim space vent must be equipped with a gasket.

(e) Each roof drain that empties into the liquid managed in the tank must be equipped with a slotted membrane fabric cover

that covers at least ninety percent of the area of the opening.

(f) Each unslotted and slotted guide pole well must be equipped with a gasketed sliding cover or a flexible fabric sleeve seal.

(g) Each unslotted guide pole must be equipped with a gasketed cap on the end of the pole.

(h) Each slotted guide pole must be equipped with a gasketed float or other device which closes off the liquid surface from the atmosphere.

(i) Each gauge hatch and each sample well must be equipped with a gasketed cover.

b. The owner or operator shall operate the tank in accordance with the following requirements:

(1) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling must be continuous and must be completed as soon as practical.

(2) Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof must be secured and maintained in a closed position at all times except when the closure device must be open for access.

(3) Covers on each access hatch and each gauge float well must be bolted or fastened when secured in the closed position.

(4) Automatic bleeder vents must be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.

(5) Rim space vents must be set to open only at those times that the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.

(6) The cap on the end of each unslotted guide pole must be secured in the closed position at all times except when measuring the level or collecting samples of the liquid in the tank.

(7) The cover on each gauge hatch or sample well must be secured in the closed position at all times except when the hatch or well must be opened for access.

(8) Both the primary seal and the secondary seal must completely cover the annular space between the external floating roof and the wall of the tank in a continuous fashion except during inspections.

c. The owner or operator shall inspect the external floating roof in accordance with the procedures specified as follows:

(1) The owner or operator shall measure the external floating roof seal gaps in accordance with the following requirements:

(a) The owner or operator shall perform measurements of gaps between the tank wall and the primary seal within sixty calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every five years.

(b) The owner or operator shall perform measurements of gaps between the tank wall and the secondary seal within sixty calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every year.

(c) If a tank ceases to hold hazardous waste for a period of one year or more, subsequent introduction of hazardous waste into the tank must be considered an initial operation for the purposes of subparagraphs a and b.

(d) The owner or operator shall determine the total surface area of gaps in the primary seal and in the secondary seal individually using the following procedure:

[1] The seal gap measurements must be performed at one or more floating roof levels when the roof is floating off the roof supports.

[2] Seal gaps, if any, must be measured around the entire perimeter of the floating roof in each place where a 0.125 inch [0.32-centimeter] diameter uniform probe passes freely (without forcing or binding against the seal) between the seal and the wall of the tank and measure the circumferential distance of each such location.

[3] For a seal gap measured under subdivision c, the gap surface area must be determined by using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.

[4] The total gap area must be calculated by adding the gap surface areas determined for each identified gap location for the primary seal and the secondary seal individually, and then dividing the sum for each seal type by the nominal perimeter of the tank. These total gap areas for the primary seal and secondary seal are then compared to the respective standards for the seal type as specified in paragraph 2 of subdivision a.

(e) If the seal gap measurements do not conform to the specifications in paragraph 2 of subdivision a, the owner or operator shall repair the defect in accordance with the

requirements of subsection 11.

(f) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 2 of section 33-24-05-459.

(2) The owner or operator shall visually inspect the external floating roof in accordance with the following requirements:

(a) The floating roof and its closure devices must be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to: holes, tears, or other openings in the rim seal or seal fabric of the floating roof; a rim seal detached from the floating roof; all or a portion of the floating roof deck being submerged below the surface of the liquid in the tank; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(b) The owner or operator shall perform an initial inspection of the external floating roof and its closure devices on or before the date that the tank becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in subsection 12.

(c) If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of subsection 11.

(d) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 2 of section 33-24-05-459.

(3) Prior to each inspection required by paragraph 1 or 2 of subdivision c of subsection 6, the owner or operator shall notify the department in advance of each inspection to provide the department with the opportunity to have an observer present during the inspection. The owner or operator shall notify the department of the date and location of the inspection as follows:

(a) Prior to each inspection to measure external floating roof seal gaps as required under paragraph 1 of subdivision c of subsection 6, written notification must be prepared and sent by the owner or operator so that it is received by the department at least thirty calendar days before the date the measurements are scheduled to be performed.

(b) Prior to each visual inspection of an external floating roof in a tank that has been emptied and degassed, written notification must be prepared and sent by the owner or operator so that it is received by the department at least thirty calendar days before refilling the tank except when an

inspection is not planned as provided for in subparagraph c of paragraph 1 of subdivision c of subsection 6.

(c) When a visual inspection is not planned and the owner or operator could not have known about the inspection thirty calendar days before refilling the tank, the owner or operator shall notify the department as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that it is received by the department at least seven calendar days before refilling the tank.

7. The owner or operator who controls air pollutant emissions from a tank by venting the tank to a control device shall meet the requirements specified in subdivisions a through c.

a. The tank must be covered by a fixed roof and vented directly through a closed-vent system to a control device in accordance with the following requirements:

(1) The fixed roof and its closure devices must be designed to form a continuous barrier over the entire surface area of the liquid in the tank.

(2) Each opening in the fixed roof not vented to the control device must be equipped with a closure device. If the pressure in the vapor headspace underneath the fixed roof is less than atmospheric pressure when the control device is operating, the closure devices must be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the fixed roof is equal to or greater than atmospheric pressure when the control device is operating, the closure device must be designed to operate with no detectable organic emissions.

(3) The fixed roof and its closure devices must be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout their intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices must include: organic vapor permeability, the effects of any contact with the liquid and its vapor managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.

(4) The closed-vent system and control device must be designed and operated in accordance with the requirements of section 33-24-05-457.

b. Whenever a hazardous waste is in the tank, the fixed roof must be installed with each closure device secured in the closed position and the vapor headspace underneath the fixed roof vented to the control device except as follows:

(1) Venting to the control device is not required, and opening of closure devices or removal of the fixed roof is allowed at the following times:

(a) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.

(b) To remove accumulated sludge or other residues from the bottom of a tank.

(2) Opening of a safety device, as defined in section 33-24-05-451, is allowed at any time conditions require doing so to avoid an unsafe condition.

c. The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:

(1) The fixed roof and its closure devices must be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(2) The closed-vent system and control device must be inspected and monitored by the owner or operator in accordance with the procedures specified in section 33-24-05-457.

(3) The owner or operator shall perform an initial inspection of the air emission control equipment on or before the date that the tank becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in subsection 12.

(4) If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of subsection 11.

(5) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 2 of section 33-24-05-459.

8. The owner or operator who controls air pollutant emissions by using a pressure tank shall meet the following requirements:

   a. The tank must be designed not to vent to the atmosphere as a result of compression of the vapor headspace in the tank during filling of the tank to its design capacity.

   b. All tank openings must be equipped with closure devices designed to operate with no detectable organic emissions as determined using the procedure specified in subsection 4 of section 33-24-05-454.

   c. Whenever a hazardous waste is in the tank, the tank must be operated as a closed system that does not vent to the atmosphere except in the event that a safety device, as defined in section 33-24-05-451, is required to open to avoid an unsafe condition.

9. The owner or operator who controls air pollutant emissions by using an enclosure vented through a closed-vent system to an enclosed combustion control device shall meet the requirements specified in subdivisions a through d.

   a. The tank shall be located inside an enclosure. The enclosure must be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in section 5.0 to "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" initially when the enclosure is first installed and, thereafter, annually.

   b. The enclosure must be vented through a closed-vent system to an enclosed combustion control device that is designed and operated in accordance with the standards for either a vapor incinerator, boiler, or process heater specified in section 33-24-05-457.

   c. Safety devices, as defined in section 33-24-05-451, may be installed and operated as necessary on any enclosure, closed-vent system, or control device used to comply with the requirements of subdivisions a and b.

   d. The owner or operator shall inspect and monitor the closed-vent system and control device as specified in section 33-24-05-457.

10. The owner or operator shall transfer hazardous waste to a tank subject to this section in accordance with the following requirements:

   a. Transfer of hazardous waste, except as provided in subdivision b, to the tank from another tank subject to this section or from a surface impoundment subject to section 33-24-05-455 must be conducted using continuous hard-piping or another closed system that does not allow

exposure of the hazardous waste to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when it meets the requirements of 40 CFR part 63, subpart RR - National Emission Standards for Individual Drain Systems.

b. The requirements of subdivision a do not apply when transferring a hazardous waste to the tank under any of the following conditions:

(1) The hazardous waste meets the average VO concentration conditions specified in subdivision a of subsection 3 of section 33-24-05-452 at the point of waste origination.

(2) The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in subdivision a of subsection 3 of section 33-24-05-452.

11. The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of subdivision d of subsection 6, subdivision c of subsection 5, subdivision c of subsection 6, or subdivision c of subsection 7 as follows:

a. The owner or operator shall make first efforts at repair of the defect no later than five calendar days after detection, and repair shall be completed as soon as possible but no later than forty-five calendar days after detection except as provided in subdivision b.

b. Repair of a defect may be delayed beyond forty-five calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

12. Following the initial inspection and monitoring of the cover as required by the applicable provisions of sections 33-24-05-450 through 33-24-05-474, subsequent inspection and monitoring may be performed at intervals longer than one year under the following special conditions:

a. If inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions, then the owner or operator may designate a cover as an "unsafe to inspect and monitor cover" and comply with all of the following requirements:

(1) Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

(2) Develop and implement a written plan and schedule to inspect and monitor the cover, using the procedures specified in the applicable section of sections 33-24-05-450 through 33-24-05-474, as frequently as practicable during those times when a worker can safely access the cover.

b. If a tank is buried partially or entirely underground, an owner or operator is required to inspect and monitor, as required by the applicable provisions of this section, only those portions of the tank cover and those connections to the tank (for example, fill ports, access hatches, gauge wells, etc.) that are located on or above the ground surface.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-455. ~~[Reserved]~~ Standards - Surface impoundments.

1. The provisions of this section apply to the control of air pollutant emissions from surface impoundments for which subsection 2 of section 33-24-05-452 references the use of this section for such air emission control.

2. The owner or operator shall control air pollutant emissions from the surface impoundment by installing and operating either of the following:

   a. A floating membrane cover in accordance with the provisions specified in subsection 3; or

   b. A cover that is vented through a closed-vent system to a control device in accordance with the provisions specified in subsection 4.

3. The owner or operator who controls air pollutant emissions from a surface impoundment using a floating membrane cover shall meet the requirements specified in subdivisions a through c.

   a. The surface impoundment shall be equipped with a floating membrane cover designed to meet the following specifications:

      (1) The floating membrane cover must be designed to float on the liquid surface during normal operations and form a continuous barrier over the entire surface area of the liquid.

      (2) The cover shall be fabricated from a synthetic membrane material that is either:

         (a) High density polyethylene with a thickness no less than 0.1 inches [2.5 millimeters]; or

         (b) A material or a composite of different materials determined to have both organic permeability properties that are equivalent to those of the material listed in subparagraph a and chemical and physical properties that maintain the material integrity for the intended service life of the material.

      (3) The cover must be installed so there are no visible cracks, holes, gaps, or other open spaces between cover section seams or between the interface of the cover edge and its foundation mountings.

(4) Except as provided for in paragraph 5, each opening in the floating membrane cover must be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device.

(5) The floating membrane cover may be equipped with one or more emergency cover drains for removal of stormwater. Each emergency cover drain shall be equipped with a slotted membrane fabric cover that covers at least ninety percent of the area of the opening or a flexible fabric sleeve seal.

(6) The closure devices must be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the closure devices throughout their intended service life. Factors to be considered when selecting the materials of construction and designing the cover and closure devices shall include: organic vapor permeability; the effects of any contact with the liquid and its vapor managed in the surface impoundment; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the surface impoundment on which the floating membrane cover is installed.

b. Whenever a hazardous waste is in the surface impoundment, the floating membrane cover shall float on the liquid and each closure device shall be secured in the closed position except as follows:

(1) Opening of closure devices or removal of the cover is allowed at the following times:

(a) To provide access to the surface impoundment for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the surface impoundment, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly replace the cover and secure the closure device in the closed position, as applicable.

(b) To remove accumulated sludge or other residues from the bottom of a surface impoundment.

(2) Opening of a safety device, as defined in section 33-24-05-451, is allowed at any time conditions require doing so to avoid an unsafe condition.

c. The owner or operator shall inspect the floating membrane cover in accordance with the following procedures:

(1) The floating membrane cover and its closure devices shall be visually inspected by the owner or operator to check for defects

that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the cover section seams or between the interface of the cover edge and its foundation mountings; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(2) The owner or operator shall perform an initial inspection of the floating membrane cover and its closure devices on or before the date that the surface impoundment becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in subsection 7.

(3) If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of subsection 6.

(4) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 3 of section 33-24-05-459.

4. The owner or operator who controls air pollutant emissions from a surface impoundment using a cover vented to a control device shall meet the requirements specified in subdivisions a through d.

a. The surface impoundment must be covered by a cover and vented directly through a closed-vent system to a control device in accordance with the following requirements:

(1) The cover and its closure devices must be designed to form a continuous barrier over the entire surface area of the liquid in the surface impoundment.

(2) Each opening in the cover not vented to the control device must be equipped with a closure device. If the pressure in the vapor headspace underneath the cover is less than atmospheric pressure when the control device is operating, the closure devices must be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the cover is equal to or greater than atmospheric pressure when the control device is operating, the closure device must be designed to operate with no detectable organic emissions using the procedure specified in subsection 4 of section 33-24-05-453.

(3) The cover and its closure devices must be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the cover and closure devices throughout their intended service life. Factors to be considered when selecting the materials for and designing the cover and closure devices include: organic vapor permeability; the effects of any contact with the liquid or its

vapors managed in the surface impoundment; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the surface impoundment on which the cover is installed.

(4) The closed-vent system and control device must be designed and operated in accordance with the requirements of section 33-24-05-457.

b. Whenever a hazardous waste is in the surface impoundment, the cover must be installed with each closure device secured in the closed position and the vapor headspace underneath the cover vented to the control device except as follows:

(1) Venting to the control device is not required, and opening of closure devices or removal of the cover is allowed at the following times:

(a) To provide access to the surface impoundment for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the surface impoundment, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the surface impoundment.

(b) To remove accumulated sludge or other residues from the bottom of surface impoundment.

(2) Opening of a safety device, as defined in section 33-24-05-451, is allowed at any time conditions require doing so to avoid an unsafe condition.

c. The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:

(1) The surface impoundment cover and its closure devices must be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the cover section seams or between the interface of the cover edge and its foundation mountings; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

(2) The closed-vent system and control device must be inspected and monitored by the owner or operator in accordance with the procedures specified in section 33-24-05-457.

(3) The owner or operator shall perform an initial inspection of the air emission control equipment on or before the date that the surface

impoundment becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in subsection 7.

(4) If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of subsection 6.

(5) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in subsection 3 of section 33-24-05-459.

5. The owner or operator shall transfer hazardous waste to a surface impoundment subject to this section in accordance with the following requirements:

a. Transfer of hazardous waste, except as provided in subdivision b, to the surface impoundment from another surface impoundment subject to this section or from a tank subject to section 33-24-05-454 must be conducted using continuous hard-piping or another closed system that does not allow exposure of the waste to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when it meets the requirements of 40 CFR part 63, subpart RR - National Emission Standards for Individual Drain Systems.

b. The requirements of subdivision a do not apply when transferring a hazardous waste to the surface impoundment under either of the following conditions:

(1) The hazardous waste meets the average VO concentration conditions specified in subdivision a of subsection 3 of section 33-24-05-452 at the point of waste origination.

(2) The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in subdivision b of subsection 3 of section 33-24-05-452.

6. The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of subdivision c of subsection 3 or subdivision c of subsection 4 as follows:

a. The owner or operator shall make first efforts at repair of the defect no later than five calendar days after detection and repair shall be completed as soon as possible but no later than forty-five calendar days after detection except as provided in subdivision b.

b. Repair of a defect may be delayed beyond forty-five calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the surface impoundment and no alternative capacity is available at the site to accept the hazardous waste normally managed in the surface impoundment. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the surface impoundment stops operation. Repair of the defect must be completed before the process or unit resumes operation.

7. Following the initial inspection and monitoring of the cover as required by the applicable provisions of sections 33-24-05-450 through 33-24-05-474, subsequent inspection and monitoring may be performed at intervals longer than one year in the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions. In this case, the owner or operator may designate the cover as an "unsafe to inspect and monitor cover" and comply with all of the following requirements:

   a. Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

   b. Develop and implement a written plan and schedule to inspect and monitor the cover using the procedures specified in the applicable section of sections 33-24-05-450 through 33-24-05-474 as frequently as practicable during those times when a worker can safely access the cover.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-456. ~~[Reserved]~~ Standards - Containers.

1. The provisions of this section apply to the control of air pollutant emissions from containers for which subsection 2 of section 33-24-05-452 references the use of this section for such air emission control.

2. General requirements.

   a. The owner or operator shall control air pollutant emissions from each container subject to this section in accordance with the following requirements, as applicable to the container, except when the special provisions for waste stabilization processes specified in subdivision b apply to the container.

      (1) For a container having a design capacity greater than 3.5 feet^3 [0.1 meters^3] and less than or equal to 16.25 feet^3 [0.46 meters^3], the owner or operator shall control air pollutant emissions from the container in accordance with the container level 1 standards specified in subsection 3.

      (2) For a container having a design capacity greater than 16.25 feet^3 [0.46 meters^3] that is not in light material service, the owner or operator shall control air pollutant emissions from the container in accordance with the container level 1 standards specified in subsection 3.

      (3) For a container having a design capacity greater than 16.25 feet^3 [0.46 meters^3] that is in light material service, the owner or operator shall control air pollutant emissions from the container in accordance with the container level 2 standards specified in subsection 4.

   b. When a container having a design capacity greater than 3.5 feet^3 [0.1

meters^3] is used for treatment of a hazardous waste by a waste stabilization process, the owner or operator shall control air pollutant emissions from the container in accordance with the container level 3 standards specified in subsection 5 at those times during the waste stabilization process when the hazardous waste in the container is exposed to the atmosphere.

3. Container level 1 standards.

a. A container using container level 1 controls is one of the following:

(1) A container that meets the applicable department of transportation regulations on packaging hazardous materials for transportation as specified in subsection 6.

(2) A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container (for example, a lid on a drum or a suitably secured tarp on a roll-off box) or may be an integral part of the container structural design (for example, a "portable tank" or bulk cargo container equipped with a screw-type cap).

(3) An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere. One example of such a barrier is application of a suitable organic-vapor suppressing foam.

b. A container used to meet the requirements of paragraph 2 or 3 of subdivision a must be equipped with covers and closure devices, as applicable to the container, that are composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere and to maintain the equipment integrity for as long as it is in service. Factors to be considered in selecting the materials of construction and designing the cover and closure devices include: organic vapor permeability, the effects of contact with the hazardous waste or its vapor managed in the container; the effects of outdoor exposure of the closure device or cover material to wind, moisture, and sunlight; and the operating practices for which the container is intended to be used.

c. Whenever a hazardous waste is in a container using container level 1 controls, the owner or operator shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position except as follows:

(1) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:

(a) In the case when the container is filled to the intended final level in one continuous operation, the owner or operator shall

promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

(b) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within fifteen minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

(2) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

(a) For the purpose of meeting the requirements of this section, an empty container as defined in subsection 2 of section 33-24-02-07 may be open to the atmosphere at any time (for example, covers and closure devices are not required to be secured in the closed position on an empty container).

(b) In the case when discrete quantities or batches of material are removed from the container but the container does not meet the conditions to be an empty container as defined in subsection 2 of section 33-24-02-07, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within fifteen minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

(3) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

(4) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the container design specifications. The device shall be designed to operate with no detectable organic emissions

when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the owner or operator based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.

(5) Opening of a safety device, as defined in section 33-24-05-451, is allowed at any time conditions require doing so to avoid an unsafe condition.

d. The owner or operator of containers using container level 1 controls shall inspect the containers and their covers and closure devices as follows:

(1) In the case when a hazardous waste already is in the container at the time the owner or operator first accepts possession of the container at the facility and the container is not emptied (for example, does not meet the conditions for an empty container as specified in subsection 2 of section 33-24-02-07) within twenty-four hours after the container is accepted at the facility, the owner or operator shall visually inspect the container and its cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph 3.

(2) In the case when a container used for managing hazardous waste remains at the facility for a period of one year or more, the owner or operator shall visually inspect the container and its cover and closure devices initially and thereafter, at least once every twelve months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph 3.

(3) When a defect is detected for the container, cover, or closure devices, the owner or operator shall make first efforts at repair of the defect no later than twenty-four hours after detection and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

e. The owner or operator shall maintain at the facility a copy of the procedure used to determine that containers with capacity of 16.25 feet^3 [0.46 meters^3] or greater, which do not meet applicable department of transportation regulations as specified in subsection 6, are not managing hazardous waste in light material service.

4. Container level 2 standards.

a. A container using container level 2 controls is one of the following:

(1) A container that meets the applicable department of transportation regulations on packaging hazardous materials for transportation as specified in subsection 6.

(2) A container that operates with no detectable organic emissions as defined in section 33-24-05-451 and determined in accordance with the procedure specified in subsection 7.

(3) A container that has been demonstrated within the preceding twelve months to be vapor-tight by using 40 CFR part 60, appendix A, method 27 in accordance with the procedure specified in subsection 8.

b. Transfer of hazardous waste in or out of a container using container level 2 controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive, or other hazardous materials. Examples of container loading procedures that the department considers to meet the requirements of this paragraph include using any one of the following: a submerged-fill pipe or other submerged-fill method to load liquids into the container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing it from the container opening.

c. Whenever a hazardous waste is in a container using container level 2 controls, the owner or operator shall install all covers and closure devices for the container, and secure and maintain each closure device in the closed position except as follows:

(1) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:

(a) In the case when the container is filled to the intended final level in one continuous operation, the owner or operator shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.

(b) In the case when discrete quantities or batches of material

intermittently are added to the container over a period of time, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within fifteen minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

(2) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

(a) For the purpose of meeting the requirements of this section, an empty container as defined in subsection 2 of section 33-24-02-07 may be open to the atmosphere at any time (for example, covers and closure devices are not required to be secured in the closed position on an empty container).

(b) In the case when discrete quantities or batches of material are removed from the container but the container does not meet the conditions to be an empty container as defined in subsection 2 of section 33-24-02-07, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within fifteen minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.

(3) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.

(4) Opening of a spring-loaded, pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the container design specifications. The device shall be designed to operate with no detectable organic emission when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the owner or operator based on container manufacturer

recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.

(5) Opening of a safety device, as defined in section 33-24-05-451, is allowed at any time conditions require doing so to avoid an unsafe condition.

d. The owner or operator of containers using container level 2 controls shall inspect the containers and their covers and closure devices as follows:

(1) In the case when a hazardous waste already is in the container at the time the owner or operator first accepts possession of the container at the facility and the container is not emptied (for example, does not meet the conditions for an empty container as specified in subsection 2 of section 33-24-02-07) within twenty-four hours after the container arrives at the facility, the owner or operator shall visually inspect the container and its cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph 3.

(2) In the case when a container used for managing hazardous waste remains at the facility for a period of one year or more, the owner or operator shall visually inspect the container and its cover and closure devices initially and thereafter, at least once every twelve months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph 3.

(3) When a defect is detected for the container, cover, or closure devices, the owner or operator shall make first efforts at repair of the defect no later than twenty-four hours after detection, and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.

5. Container level 3 standards.

a. A container using container level 3 controls is one of the following:

(1) A container that is vented directly through a closed-vent system to a control device in accordance with the requirements of paragraph 2.

(2) A container that is vented inside an enclosure which is exhausted through a closed-vent system to a control device in accordance with the requirements of paragraphs 1 and 2 of subsection b.

b. The owner or operator shall meet the following requirements, as applicable to the type of air emission control equipment selected by the owner or operator:

(1) The container enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B. The enclosure may have permanent or temporary openings to allow worker access; passage of containers through the enclosure by conveyor or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in section 5.0 to "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" initially when the enclosure is first installed and, thereafter, annually.

(2) The closed-vent system and control device shall be designed and operated in accordance with the requirements of section 33-24-05-457.

c. Safety devices, as defined in section 33-24-05-451, may be installed and operated as necessary on any container, enclosure, closed-vent system, or control device used to comply with the requirements of subdivision a.

d. Owners and operators using container level 3 controls in accordance with the provisions of sections 33-24-05-450 through 33-24-05-474 shall inspect and monitor the closed-vent systems and control devices as specified in section 33-24-05-457.

e. Owners and operators that use container level 3 controls in accordance with the provisions of sections 33-24-05-450 through 33-24-05-474 shall prepare and maintain the records specified in subsection 4 of section 33-24-05-459.

6. For the purpose of compliance with paragraph 1 of subdivision a of subsection 3 or paragraph 1 of subdivision a of subsection 4, containers shall be used that meet the applicable department of transportation regulations on packaging hazardous materials for transportation as follows:

a. The container meets the applicable requirements specified in 49 CFR part 178 - Specifications for Packaging or 49 CFR part 179 - Specifications for Tank Cars.

b. Hazardous waste is managed in the container in accordance with the applicable requirements specified in 49 CFR part 107, subpart B -

Exemptions; 49 CFR part 172 - Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements; 49 CFR part 173 - Shippers - General Requirements for Shipments and Packages; and 49 CFR part 180 - Continuing Qualification and Maintenance of Packagings.

c. For the purpose of complying with sections 33-24-05-450 through 33-24-05-474, no exceptions to the 49 CFR part 178 or part 179 regulations are allowed except as provided for in subdivision d.

d. For a lab pack that is managed in accordance with the requirements of 49 CFR part 178 for the purpose of complying with sections 33-24-05-450 through 33-24-05-474, an owner or operator may comply with the exceptions for combination packagings specified in 49 CFR 173.12(b).

7. The owner or operator shall use the procedure specified in subsection 4 of section 33-24-05-453 for determining a container operates with no detectable organic emissions for the purpose of complying with paragraph 2 of subdivision a of subsection 4.

a. Each potential leak interface (for example, a location where organic vapor leakage could occur) on the container, its cover, and associated closure devices, as applicable to the container, shall be checked. Potential leak interfaces that are associated with containers include, but are not limited to: the interface of the cover rim and the container wall; the periphery of any opening on the container or container cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.

b. The test shall be performed when the container is filled with a material having a volatile organic concentration representative of the range of volatile organic concentrations for the hazardous wastes expected to be managed in this type of container. During the test, the container cover and closure devices shall be secured in the closed position.

8. Procedure for determining a container to be vapor-tight using method 27 of 40 CFR part 60, appendix A for the purpose of complying with paragraph 3 of subdivision a of subsection 4.

a. The test shall be performed in accordance with method 27 of 40 CFR part 60, appendix A.

b. A pressure measurement device shall be used that has a precision of plus or minus 0.1 inches [plus or minus 2.5 millimeters] water and that is capable of measuring above the pressure at which the container is to be tested for vapor tightness.

c. If the test results determined by method 27 indicate that the container sustains a pressure change less than or equal to seven hundred fifty pascals within five minutes after it is pressurized to a minimum of four thousand five hundred pascals, then the container is determined to be vapor-tight.

History: Effective July 1, 1997.

General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-457. ~~[Reserved]~~ Standards - Closed-vent systems and control devices.

1. This section applies to each closed-vent system and control device installed and operated by the owner or operator to control air emissions in accordance with standards of sections 33-24-05-450 through 33-24-05-474.

2. The closed-vent system shall meet the following requirements:

   a. The closed-vent system shall route the gases, vapors, and fumes emitted from the hazardous waste in the waste management unit to a control device that meets the requirements specified in subsection 3.

   b. The closed-vent system shall be designed and operated in accordance with the requirements specified in subsection 11 of section 33-24-05-403.

   c. In the case when the closed-vent system includes bypass devices that could be used to divert the gas or vapor stream to the atmosphere before entering the control device, each bypass device shall be equipped with either a flow indicator as specified in paragraph 1 or a seal or locking device as specified in paragraph 2. For the purpose of complying with this subdivision, low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, spring-loaded pressure relief valves, and other fittings used for safety purposes are not considered to be bypass devices.

      (1) If a flow indicator is used to comply with this subdivision, the indicator shall be installed at the inlet to the bypass line used to divert gases and vapors from the closed-vent system to the atmosphere at a point upstream of the control device inlet. For this paragraph, a flow indicator means a device which indicates the presence of either gas or vapor flow in the bypass line.

      (2) If a seal or locking device is used to comply with this subdivision, the device shall be placed on the mechanism by which the bypass device position is controlled (for example, valve handle, damper lever) when the bypass device is in the closed position such that the bypass device cannot be opened without breaking the seal or removing the lock. Examples of such devices include, but are not limited to, a car-seal or a lock-and-key configuration valve. The owner or operator shall visually inspect the seal or closure mechanism at least once every month to verify that the bypass mechanism is maintained in the closed position.

   d. The closed-vent system shall be inspected and monitored by the owner or operator in accordance with the procedure specified in subsection 12 of section 33-24-05-403.

3. The control device shall meet the following requirements:

   a. The control device shall be one of the following devices:

(1) A control device designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least ninety-five percent by weight;

(2) An enclosed combustion device designed and operated in accordance with the requirements of subsection 3 of section 33-24-05-403; or

(3) A flare designed and operated in accordance with the requirements of subsection 4 of section 33-24-05-403.

b. The owner or operator who elects to use a closed- vent system and control device to comply with the requirements of this section shall comply with the requirements specified in paragraphs 1 through 6.

(1) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of paragraph 1, 2, or 3 of subdivision a, as applicable, shall not exceed two hundred forty hours per year.

(2) The specifications and requirements in paragraphs 1, 2, and 3 of subdivision a for control devices do not apply during periods of planned routine maintenance.

(3) The specifications and requirements in paragraphs 1, 2, and 3 of subdivision a for control devices do not apply during a control device system malfunction.

(4) The owner or operator shall demonstrate compliance with the requirements of paragraph 1 (for example, planned routine maintenance of a control device, during which the control device does not meet the specifications of paragraph 1, 2, or 3 of subdivision a, as applicable, shall not exceed two hundred forty hours per year) by recording the information specified in paragraph 5 of subdivision a of subsection 5 of section 33-24-05-459.

(5) The owner or operator shall correct control device system malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of air pollutants.

(6) The owner or operator shall operate the closed-vent system such that gases, vapors, or fumes are not actively vented to the control device during periods of planned maintenance or control device system malfunction (for example, periods when the control device is not operating or not operating normally) except in cases when it is necessary to vent the gases, vapors, and/or fumes to avoid an unsafe condition or to implement malfunction corrective actions or planned maintenance actions.

c. The owner or operator using a carbon adsorption system to comply with subdivision a shall operate and maintain the control device in accordance with the following requirements:

(1) Following the initial startup of the control device, all activated

carbon in the control device shall be replaced with fresh carbon on a regular basis in accordance with the requirements of subsection 7 or 8 of section 33-24-05-403.

(2) All carbon removed from the control device shall be managed in accordance with the requirements of subsection 14 of section 33-24-05-403.

d. An owner or operator using a control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system to comply with subdivision a shall operate and maintain the control device in accordance with the requirements of subsection 10 of section 33-24-05-403.

e. The owner or operator shall demonstrate that a control device achieves the performance requirements of subdivision a as follows:

(1) An owner or operator shall demonstrate using either a performance test as specified in paragraph 3 or a design analysis as specified in paragraph 4 the performance of each control device except for the following:

(a) A flare;

(b) A boiler or process heater with a design heat input capacity of 44 megawatts or greater;

(c) A boiler or process heater into which the vent stream is introduced with the primary fuel;

(d) A boiler or industrial furnace burning hazardous waste for which the owner or operator has been issued a final permit under chapter 33-24-06 and has designed and operates the unit in accordance with the requirements of sections 33-24-05-144 through 33-24-05-159; or

(e) A boiler or industrial furnace burning hazardous waste for which the owner or operator has designed and operates in accordance with the interim status requirements of subsection 5 of section 33-24-06-16.

(2) An owner or operator shall demonstrate the performance of each flare in accordance with the requirements specified in subsection 5 of section 33-24-05-403.

(3) For a performance test conducted to meet the requirements of paragraph 1, the owner or operator shall use the test methods and procedures specified in subdivisions a through d of subsection 3 of section 33-24-05-404.

(4) For a design analysis conducted to meet the requirements of paragraph 1, the design analysis shall meet the requirements specified in paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405.

(5) The owner or operator shall demonstrate that a carbon adsorption system achieves the performance requirements of subdivision a based on the total quantity of organics vented to the atmosphere from all carbon adsorption system equipment that is used for organic adsorption, organic desorption or carbon regeneration, organic recovery, and carbon disposal.

f. If the owner or operator and the department do not agree on a demonstration of control device performance using a design analysis then the disagreement shall be resolved using the results of a performance test performed by the owner or operator in accordance with the requirements of paragraph 3. The department may choose to have an authorized representative observe the performance test.

g. The control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in subdivision b of subsection 6 and subsection 7 of section 33-24-05-403. The readings from each monitoring device required by subdivision b of subsection 6 of section 33-24-05-403 shall be inspected at least once each operating day to check control device operation. Any necessary corrective measures shall be immediately implemented to ensure the control device is operated in compliance with the requirements of section 33-24-05-457.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.4

33-24-05-458. ~~[Reserved]~~ Inspection and monitoring requirements.

1. The owner or operator shall inspect and monitor air emission control equipment used to comply with sections 33-24-05-450 through 33-24-05-474 in accordance with the applicable requirements specified in sections 33-24-05-454 through 33-24-05-457.

2. The owner or operator shall develop and implement a written plan and schedule to perform the inspections and monitoring required by subsection 1. The owner or operator shall incorporate this plan and schedule into the facility inspection plan required under section 33-24-05-06.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3, 23-20.3-04

33-24-05-459. ~~[Reserved]~~ Recordkeeping requirements.

1. Each owner or operator of a facility subject to requirements in sections 33-24-05-450 through 33-24-05-474 shall record and maintain the information specified in subsections 2 through 9, as applicable to the facility. Except for air emission control equipment design documentation and information required by subsection 9, records required by this section shall be maintained in the operating record for a minimum of three years. Air emission control equipment design documentation shall be maintained in the operating record

until the air emission control equipment is replaced or otherwise no longer in service. Information required by subsection 9 shall be maintained in the operating record for as long as the tank or container is not using air emission controls specified in sections 33-24-05-454 through 33-24-05-457 in accordance with the conditions specified in subsection 4 of section 33-24-05-454.

2. The owner or operator of a tank using air emission controls in accordance with the requirements of section 33-24-05-454 shall prepare and maintain records for the tank that include the following information:

a. For each tank using air emission controls in accordance with the requirements of section 33-24-05-454, the owner or operator shall record:

(1) A tank identification number (or other unique identification description as selected by the owner or operator).

(2) A record for each inspection required by section 33-24-05-454 that includes the following information:

(a) Date inspection was conducted.

(b) For each defect detected during the inspection, the following information: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with the provisions of section 33-24-05-454, the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected.

b. In addition to the information required by subdivision a, the owner or operator shall record the following information, as applicable to the tank:

(1) The owner or operator using a fixed roof to comply with the tank level 1 control requirements specified in subsection 3 of section 33-24-05-454 shall prepare and maintain records for each determination for the maximum organic vapor pressure of the hazardous waste in the tank performed in accordance with the requirements of subsection 3 of section 33-24-05-454. The records shall include the date and time the samples were collected, the analysis method used, and the analysis results.

(2) The owner or operator using an internal floating roof to comply with the tank level 2 control requirements specified in subsection 5 of section 33-24-05-454 shall prepare and maintain documentation describing the floating roof design.

(3) Owners and operators using an external floating roof to comply with the tank level 2 control requirements specified in subsection 6 of section 33-24-05-454 shall prepare and maintain the following records:

(a) Documentation describing the floating roof design and the dimensions of the tank.

(b) Records for each seal gap inspection required by subdivision c of subsection 6 of section 33-24-05-454 describing the results of the seal gap measurements. The records shall include the date that the measurements were performed, the raw data obtained for the measurements, and the calculations of the total gap surface area. In the event that the seal gap measurements do not conform to the specifications in subdivision a of subsection 6 of section 33-24-05-454, the records shall include a description of the repairs that were made, the date the repairs were made, and the date the tank was emptied, if necessary.

(4) Each owner or operator using an enclosure to comply with the tank level 2 control requirements specified in subsection 9 of section 33-24-05-454 shall prepare and maintain the following records:

(a) Records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B.

(b) Records required for the closed-vent system and control device in accordance with the requirements of subsection 5.

3. The owner or operator of a surface impoundment using air emission controls in accordance with the requirements of section 33-24-05-455 shall prepare and maintain records for the surface impoundment that include the following information:

a. A surface impoundment identification number (or other unique identification description as selected by the owner or operator).

b. Documentation describing the floating membrane cover or cover design, as applicable to the surface impoundment, that includes information prepared by the owner or operator or provided by the cover manufacturer or vendor describing the cover design, and certification by the owner or operator that the cover meets the specifications listed in subsection 3 of section 33-24-05-455.

c. A record for each inspection required by section 33-24-05-455 that includes the following information:

(1) Date inspection was conducted.

(2) For each defect detected during the inspection the following information: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with the provisions of subsection 6 of section 33-24-05-

455, the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected.

d. For a surface impoundment equipped with a cover and vented through a closed-vent system to a control device, the owner or operator shall prepare and maintain the records specified in subsection 5.

4. The owner or operator of containers using container level 3 air emission controls in accordance with the requirements of section 33-24-05-456 shall prepare and maintain records that include the following information:

a. Records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B.

b. Records required for the closed-vent system and control device in accordance with the requirements of subsection 5.

5. The owner or operator using a closed-vent system and control device in accordance with the requirements of section 33-24-05-457 shall prepare and maintain records that include the following information:

a. Documentation for the closed-vent system and control device that includes:

(1) Certification that is signed and dated by the owner or operator stating that the control device is designed to operate at the performance level documented by a design analysis as specified in paragraph 2 or by performance tests as specified in paragraph 3 when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

(2) If a design analysis is used, then design documentation as specified in subdivision d of subsection 2 of section 33-24-05-405. The documentation shall include information prepared by the owner or operator or provided by the control device manufacturer or vendor that describes the control device design in accordance with paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405 and certification by the owner or operator that the control equipment meets the applicable specifications.

(3) If performance tests are used, then a performance test plan as specified in subdivision c of subsection 2 of section 33-24-05-405 and all test results.

(4) Information as required by subdivisions a and b of subsection 3 of section 33-24-05-405, as applicable.

(5) An owner or operator shall record, on a semiannual basis, the information specified in subparagraphs a and b for those planned routine maintenance operations that would require the control device

not to meet the requirements of paragraph 1, 2, or 3 of subdivision a of subsection 3 of section 33-24-05-457, as applicable.

(a) A description of the planned routine maintenance that is anticipated to be performed for the control device during the next six-month period. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.

(b) A description of the planned routine maintenance that was performed for the control device during the previous six-month period. This description shall include the type of maintenance performed and the total number of hours during those six months that the control device did not meet the requirements of paragraph 1, 2, or 3 of subdivision a of subsection 3 of section 33-24-05-457, as applicable, due to planned routine maintenance.

(6) An owner or operator shall record the information specified in subparagraphs a through c for those unexpected control device system malfunctions that would require the control device not to meet the requirements of paragraph 1, 2, or 3 of subdivision a of subsection 3 of section 33-24-05-457, as applicable.

(a) The occurrence and duration of each malfunction of the control device system.

(b) The duration of each period during a malfunction when gases, vapors, or fumes are vented from the waste management unit through the closed-vent system to the control device while the control device is not properly functioning.

(c) Actions taken during periods of malfunction to restore a malfunctioning control device to its normal or usual manner of operation.

(7) Records of the management of carbon removed from a carbon adsorption system conducted in accordance with paragraph 2 of subdivision c of subsection 3 of section 33-24-05-457.

6. The owner or operator of a tank, surface impoundment, or container exempted from standards in accordance with the provisions of subsection 3 of section 33-24-05-452 shall prepare and maintain the following records, as applicable:

a. For tanks, surface impoundments, or containers exempted under the hazardous waste organic concentration conditions specified in subdivision a or b of subsection 3 of section 33-24-05-452, the owner or operator shall record the information used for each waste determination (for example, test results, measurements, calculations, and other documentation) in the facility operating log. If analysis results for waste samples are used for the waste determination, then the owner or operator shall record the date, time, and location that each waste sample is collected in accordance with applicable requirements of section 33-24-05-453.

b. For tanks, surface impoundments, or containers exempted under the provisions of paragraph 7 or 8 of subdivision b of subsection 3 of section 33-24-05-452, the owner or operator shall record the identification number for the incinerator, boiler, or industrial furnace in which the hazardous waste is treated.

7. An owner or operator designating a cover as "unsafe to inspect and monitor" pursuant to subsection 11 of section 33-24-05-454 or subsection 7 of section 33-24-05-455 shall record in a log that is kept in the facility operating record the following information: the identification numbers for waste management units with covers that are designated as "unsafe to inspect and monitor", the explanation for each cover stating why the cover is unsafe to inspect and monitor, and the plan and schedule for inspecting and monitoring each cover.

8. The owner or operator of a facility that is subject to sections 33-24-05-450 through 33-24-05-474 and to the control device standards in 40 CFR part 60, subpart VV, or 40 CFR part 61, subpart V, may elect to demonstrate compliance with the applicable sections of sections 33-24-05-450 through 33-24-05-474 by documentation either pursuant to sections 33-24-05-450 through 33-24-05-474, or pursuant to the provisions of 40 CFR part 60, subpart VV or 40 CFR part 61, subpart V, to the extent that the documentation required by 40 CFR parts 60 or 61 duplicates the documentation required by this section.

9. For each tank or container not using air emission controls specified in sections 33-24-05-454 through 33-24-05-457 in accordance with the conditions specified in subsection 4 of section 33-24-05-450, the owner or operator shall record and maintain the following information:

   a. A list of the individual organic peroxide compounds manufactured at the facility that meet the conditions specified in subdivision a of subsection 4 of section 33-24-05-450.

   b. A description of how the hazardous waste containing the organic peroxide compounds identified in subdivision a are managed at the facility in tanks and containers. This description shall include:

      (1) For the tanks used at the facility to manage this hazardous waste, sufficient information shall be provided to describe for each tank: a facility identification number for the tank; the purpose and placement of this tank in the management train of this hazardous waste; and the procedures used to ultimately dispose of the hazardous waste managed in the tanks.

      (2) For containers used at the facility to manage these hazardous wastes, sufficient information shall be provided to describe: a facility identification number for the container or group of containers; the purpose and placement of this container, or group of containers, in the management train of this hazardous waste; and the procedures used to ultimately dispose of the hazardous waste handled in the containers.

   c. An explanation of why managing the hazardous waste containing the organic peroxide compounds identified in subdivision a in the tanks and

containers as described in subdivision b would create an undue safety hazard if the air emission controls, as required under sections 33-24-05-454 through 33-24-05-457, are installed and operated on these waste management units. This explanation shall include the following information:

(1) For tanks used at the facility to manage these hazardous wastes, sufficient information shall be provided to explain: how use of the required air emission controls on the tanks would affect the tank design features and facility operating procedures currently used to prevent an undue safety hazard during the management of this hazardous waste in the tanks; and why installation of safety devices on the required air emission controls, as allowed under sections 33-24-05-450 through 33-24-05-474, will not address those situations in which evacuation of tanks equipped with these air emission controls is necessary and consistent with good engineering and safety practices for handling organic peroxides.

(2) For containers used at the facility to manage these hazardous wastes, sufficient information shall be provided to explain: how use of the required air emission controls on the containers would affect the container design features and handling procedures currently used to prevent an undue safety hazard during the management of this hazardous waste in the containers; and why installation of safety devices on the required air emission controls, as allowed under sections 33-24-05-450 through 33-24-05-474, will not address those situations in which evacuation of containers equipped with these air emission controls is necessary and consistent with good engineering and safety practices for handling organic peroxides.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-460. ~~[Reserved]~~ Reporting requirements.

1. Each owner or operator managing hazardous waste in a tank, surface impoundment, or container exempted from using air emission controls under the provisions of subsection 3 of section 33-24-05-452 shall report to the department each occurrence when hazardous waste is placed in the waste management unit in noncompliance with the conditions specified in subdivision a or b of subsection 3 of section 33-24-05-452, as applicable. Examples of such occurrences include placing in the waste management unit a hazardous waste having an average VO concentration equal to or greater than five hundred parts per million weight at the point of waste origination; or placing in the waste management unit a treated hazardous waste of which the organic content has been reduced by an organic destruction or removal process that fails to achieve the applicable conditions specified in paragraphs 1 through 6 of subdivision b of subsection 3 of section 33-24-05-452. The owner or operator shall submit a written report within fifteen calendar days of the time that the owner or operator becomes aware of the occurrence. The written report shall contain the environmental protection agency identification number, facility name and address, a description of the noncompliance event and the

cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report shall be signed and dated by an authorized representative of the owner or operator.

2. Each owner or operator using air emission controls on a tank in accordance with the requirements of subsection 3 of section 33-24-05-454 shall report to the department each occurrence when hazardous waste is managed in the tank in noncompliance with the conditions specified in subsection 2 of section 33-24-05-454. The owner or operator shall submit a written report within fifteen calendar days of the time that the owner or operator becomes aware of the occurrence. The written report shall contain the environmental protection agency identification number, facility name and address, a description of the noncompliance event and the cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report shall be signed and dated by an authorized representative of the owner or operator.

3. Each owner or operator using a control device in accordance with the requirements of section 33-24-05-457 shall submit a semiannual written report to the department except as provided for in subsection 4. The report shall describe each occurrence during the previous six-month period when either:

   a. A control device is operated continuously for twenty-four hours or longer in noncompliance with the applicable operating values defined in subdivision d of subsection 3 of section 33-24-05-405; or

   b. A flare is operated with visible emissions for five minutes or longer in a two-hour period, as defined in subsection 4 of section 33-24-05-403.

4. A report to the department in accordance with the requirements of subsection 3 is not required for a six-month period during which all control devices subject to sections 33-24-05-450 through 33-24-05-474 are operated by the owner or operator such:

   a. During no period of twenty-four hours or longer did a control device operate continuously in noncompliance with the applicable operating values defined in subdivision d of subsection 3 of section 33-24-05-405; and

   b. No flare was operated with visible emissions for five minutes or longer in a two-hour period, as defined in subsection 4 of section 33-24-05-403.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-461. [Reserved]

33-24-05-462. [Reserved]

33-24-05-463. [Reserved]

33-24-05-464. [Reserved]

33-24-05-465. [Reserved]

33-24-05-466. [Reserved]

33-24-05-467. [Reserved]

33-24-05-468. [Reserved]

33-24-05-469. [Reserved]

33-24-05-470. [Reserved]

33-24-05-471. [Reserved]

33-24-05-472. [Reserved]

33-24-05-473. [Reserved]

33-24-05-474. [Reserved]

33-24-05-475. Applicability to containment buildings. The requirements of sections 33-24-05-475 through 33-24-05-500 apply to owners or operators who store or treat hazardous waste in units designed and operated under section 33-24-05-476. These provisions will become effective on February 18, 1993, although owner or operator may notify the department of his intent to be bound by this section at an earlier time. The owner or operator is not subject to the definition of land disposal in Resource Conservation and Recovery Act section 3004(k) provided that the unit:

1. Is a completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit, and to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes to which they are exposed; climatic conditions; and the stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls;

2. Has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling equipment within the unit;

3. If the unit is used to manage liquids, has:

   a. A primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier;

   b. A liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier; and

   c. A secondary containment system designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time, unless the unit has been granted a variance from the secondary

containment system requirements under subdivision d of subsection 2 of section 33-24-05-476;

4. Has controls sufficient to prevent fugitive dust emissions to meet the no visible emission standard in paragraph 4 of subdivision a of subsection 3 of section 33-24-05-476; and

5. Is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel or equipment.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-476. Design and operating standards.

1. All containment buildings must comply with the following design standards:

   a. The containment building must be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements (~~e.g.,~~ for example, precipitation, wind, runon) and to assure containment of managed wastes.

   b. The floor and containment walls of the unit, including the secondary containment system if required under subsection 2, must be designed and constructed of materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit, and to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes to which they are exposed; climatic conditions; and the stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls. The unit must be designed so that it has sufficient structural strength to prevent collapse or other failure. All surfaces to be in contact with hazardous wastes must be chemically compatible with those wastes. The department will consider standards established by professional organizations generally recognized by the industry such as the American concrete institute and the American society of testing materials in judging the structural integrity requirements of this paragraph. If appropriate to the nature of the waste management operation to take place in the unit, an exception to the structural strength requirement may be made for lightweight doors and windows that meet these criteria:

      (1) They provide an effective barrier against fugitive dust emissions under paragraph 4 of subdivision a of subsection 3; and

      (2) The unit is designed and operated in a fashion that assures that wastes will not actually come in contact with these openings.

   c. Incompatible hazardous wastes or treatment reagents must not be placed in the unit or its secondary containment system if they could cause the unit or secondary containment system to leak, corrode, or otherwise fail.

   d. A containment building must have a primary barrier designed to withstand

the movement of personnel, waste, and handling equipment in the unit during the operating life of the unit and appropriate for the physical and chemical characteristics of the waste to be managed.

2. For a containment building used to manage hazardous wastes containing free liquids or treated with free liquids (the presence of which is determined by the paint filter test, a visual examination, or other appropriate means), the owner or operator must include:

   a. A primary barrier designed and constructed of materials to prevent the migration of hazardous constituents into the barrier (~~e.g.,~~ for example, a geomembrane covered by a concrete wear surface).

   b. A liquid collection and removal system to minimize the accumulation of liquid on the primary barrier of the containment building:

      (1) The primary barrier must be sloped to drain liquids to the associated collection system; and

      (2) Liquids and waste must be collected and removed to minimize hydraulic head on the containment system at the earliest practicable time.

   c. A secondary containment system including a secondary barrier designed and constructed to prevent migration of hazardous constituents into the barrier, and a leak detection system that is capable of detecting failure of the primary barrier and collecting accumulated hazardous wastes and liquids at the earliest practicable time.

      (1) The requirements of the leak detection component of the secondary containment system are satisfied by installation of a system that is, at a minimum:

         (a) Constructed with a bottom slope of one percent or more; and

         (b) Constructed of a granular drainage material with a hydraulic conductivity of $1x10^{-2}$ centimeters per second or more and a thickness of twelve inches [30.5 centimeters] or more, or constructed of synthetic or geonet drainage materials with a transmissivity of $3x10^{-5}$ square meters per second or more.

      (2) If treatment is to be conducted in the building, an area in which such treatment will be conducted must be designed to prevent the release of liquids, wet materials, or liquid aerosols to other portions of the building.

      (3) The secondary containment system must be constructed of materials that are chemically resistant to the waste and liquids managed in the containment building and of sufficient strength and thickness to prevent collapse under the pressure exerted by overlaying materials and by any equipment used in the containment building. (Containment buildings can serve as secondary containment systems for tanks placed within the building under certain conditions. A containment building can serve as an external liner system for a

tank, provided it meets the requirements of subdivision a of subsection 4 of section 33-24-05-106. In addition, the containment building must meet the requirements of subsection 2 of section 33-24-05-106 and subdivisions a and b of subsection 3 of section 33-24-05-106 to be considered an acceptable secondary containment system for a tank.)

d. For existing units other than ninety-day generator units, the department may delay the secondary containment requirement for up to two years, based on a demonstration by the owner or operator that the unit substantially meets the standards of this subpart. In making this demonstration, the owner or operator must:

(1) Provide written notice to the department of their request by November 16, 1992. This notification must describe the unit and its operating practices with specific reference to the performance of existing containment systems, and specific plans for retrofitting the unit with secondary containment;

(2) Respond to any comments from the department on these plans within thirty days; and

(3) Fulfill the terms of the revised plans, if such plans are approved by the department.

3. Owners or operators of all containment buildings must:

a. Use controls and practices to ensure containment of the hazardous waste within the unit; and, at a minimum:

(1) Maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the primary barrier;

(2) Maintain the level of the stored or treated hazardous waste within the containment walls of the unit so that the height of any containment wall is not exceeded;

(3) Take measures to prevent the tracking of hazardous waste out of the unit by personnel or by equipment used in handling the waste. An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed; and

(4) Take measures to control fugitive dust emissions such that any openings (doors, windows, vents, cracks, etc.) exhibit no visible emissions (see 40 CFR part 60, appendix A, method 22 visual determination of fugitive emissions from material sources and smoke emissions from flares). In addition, all associated particulate collection devices (for example, fabric filter, electrostatic precipitator) must be operated and maintained with sound air pollution control practices (see 40 CFR part 60 subpart 292 for guidance). This state of no visible emissions must be maintained effectively at all times during routine operating and maintenance conditions, including when vehicles and personnel are entering and

exiting the unit.

b. Obtain certification by a qualified registered professional engineer that the containment building design meets the requirements of subsections 1, 2, and 3. For units placed into operation prior to February 18, 1993, this certification must be placed in the facility's operating record (onsite files for generators who are not formally required to have operating records) no later than sixty days after the date of initial operation of the unit. After February 18, 1993, professional engineer certification will be required prior to operation of the unit.

c. Throughout the active life of the containment building, if the owner or operator detects a condition that could lead to or has caused a release of hazardous waste, must repair the condition promptly, in accordance with the following procedures.

(1) Upon detection of a condition that has lead to a release of hazardous waste (~~e.g.,~~ for example, upon detection of leakage from the primary barrier) the owner or operator must:

(a) Enter a record of the discovery in the facility operating record;

(b) Immediately remove the portion of the containment building affected by the condition from service;

(c) Determine what steps must be taken to repair the containment building, remove any leakage from the secondary collection system, and establish a schedule for accomplishing the cleanup and repairs; and

(d) Within seven days after the discovery of the condition, notify the department of the condition, and within fourteen working days, provide a written notice to the department with a description of the steps taken to repair the containment building, and the schedule for accomplishing the work.

(2) The department will review the information submitted, make a determination regarding whether the containment building must be removed from service completely or partially until repairs and cleanup are complete, and notify the owner or operator of the determination and the underlying rationale in writing.

(3) Upon completing all repairs and cleanup the owner or operator must notify the department in writing and provide a verification, signed by a qualified, registered professional engineer, that the repairs and cleanup have been completed according to the written plan submitted in accordance with subparagraph d of paragraph 1 of subdivision c of subsection 3.

d. Inspect and record in the facility's operating record, at least once every seven days, data gathered from monitoring equipment and leak detection equipment as well as the containment building and the area immediately surrounding the containment building to detect signs of

releases of hazardous waste.

4. For containment buildings that contain areas both with and without secondary containment, the owner or operator must:

   a. Design and operate each area in accordance with the requirements enumerated in subsections 1, 2, and 3;

   b. Take measures to prevent the release of liquids or wet materials into areas without secondary containment; and

   c. Maintain in the facility's operating log a written description of the operating procedures used to maintain the integrity of areas without secondary containment.

5. Notwithstanding any other provision of sections 33-24-05-475 through 33-24-05-500 the department may waive requirements for secondary containment for a permitted containment building where the owner or operator demonstrates that the only free liquids in the unit are limited amounts of dust suppression liquids required to meet occupational health and safety requirements, and where containment of managed wastes and liquids can be assured without a secondary containment system.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-477. Closure and postclosure care.

1. At closure of a containment building, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless subsection 4 of section 33-24-02-03 applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for containment buildings must meet all of the requirements specified in sections 33-24-05-59 through 33-24-05-88.

2. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in subsection 1, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility and perform postclosure care in accordance with the closure and postclosure requirements that apply to landfills (section 33-24-05-180). In addition, for the purposes of closure, postclosure, and financial responsibility, such a containment building is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in sections 33-24-05-59 through 33-24-05-88.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-478. [Reserved]

33-24-05-479. [Reserved]

33-24-05-480. [Reserved]

33-24-05-481. [Reserved]

33-24-05-482. [Reserved]

33-24-05-483. [Reserved]

33-24-05-484. [Reserved]

33-24-05-485. [Reserved]

33-24-05-486. [Reserved]

33-24-05-487. [Reserved]

33-24-05-488. [Reserved]

33-24-05-489. [Reserved]

33-24-05-490. [Reserved]

33-24-05-491. [Reserved]

33-24-05-492. [Reserved]

33-24-05-493. [Reserved]

33-24-05-494. [Reserved]

33-24-05-495. [Reserved]

33-24-05-496. [Reserved]

33-24-05-497. [Reserved]

33-24-05-498. [Reserved]

33-24-05-499. [Reserved]

33-24-05-500. [Reserved]

33-24-05-501. Applicability to drip pads.

1. The requirements of sections 33-24-05-501 through 33-24-05-509 apply to owners and operators of facilities that use new or existing drip pads to convey treated wood drippage, precipitation, and surface water runoff to an associated collection system. Existing drip pads are those constructed before December 6, 1990, and those for which the owner or operator has a design and

has entered into binding financial or other agreements for construction prior to December 6, 1990. All other drip pads are new drip pads. The requirement of subdivision c of subsection 2 of section 33-24-05-504 to install a leak collection system applies only to those drip pads that are constructed after December 24, 1992, except for those constructed after December 24, 1992, for which the owner or operator has a design and has entered into binding financial or other agreements for construction prior to December 24, 1992.

2. The owner or operator of any drip pad that is inside or under a structure that provides protection from precipitation so that neither runoff nor run-on is generated is not subject to regulation under subsection 5 or 6 of section 33-24-05-504.

3. The requirements of sections 33-24-05-501 through 33-24-05-524 are not applicable to the management of infrequent and incidental drippage in storage yards provided that:

   a. The owner or operator maintains and complies with a written contingency plan that describes how the owner or operator will respond immediately to the discharge of such infrequent and incidental drippage. At a minimum, the contingency plan must describe how the owner or operator will do the following:

      (1) Clean up the drippage;

      (2) Document the cleanup of the drippage;

      (3) Retain documents regarding cleanup for three years; and

      (4) Manage the contaminated media in a manner consistent with federal regulations.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-502. Assessment of existing drip pad integrity.

1. For each existing drip pad as defined in section 33-24-05-501, the owner or operator must evaluate the drip pad and determine that it meets all of the requirements of this section, except the requirements for liners and leak detection systems of subsection 2 of section 33-24-05-504. No later than the effective date of this rule, the owner or operator must obtain and keep on file at the facility a written assessment of the drip pad, reviewed and certified by an independent, qualified registered professional engineer that attests to the results of the evaluation. The assessment must be reviewed, updated and recertified annually until all upgrades, repairs, or modifications necessary to achieve compliance with all of the standards of section 33-24-05-504 are complete. The evaluation must document the extent to which the drip pad meets each of the design and operating standards of section 33-24-05-504, except the standards for liners and leak detection systems, specified in subsection 2 of section 33-24-05-504.

2. The owner or operator must develop a written plan for upgrading, repairing, and modifying the drip pad to meet the requirements of subsection 2 of section 33-24-05-504, and submit the plan to the department no later than two years before the date that all repairs, upgrades, and modifications are complete. This written plan must describe all changes to be made to the drip pad in sufficient detail to document compliance with all the requirements of section 33-24-05-504. The plan must be reviewed and certified by an independent qualified registered professional engineer.

3. Upon completion of all upgrades, repairs, and modifications, the owner or operator must submit to the department, the as-built drawings for the drip pad together with a certification by an independent, qualified registered professional engineer attesting that the drip pad conforms to the drawings.

4. If the drip pad is found to be leaking or unfit for use, the owner or operator must comply with the provisions of subsection 13 of section 33-24-05-504 or close the drip pad in accordance with section 33-24-05-506.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-503. Design and installation of new drip pads. Owners and operators of new drip pads must ensure that the pads are designed, installed, and operated in accordance with one of the following:

1. All of the requirements of sections 33-24-05-504 (except subdivision d of subsection 1 of section 33-24-05-504), 33-24-05-505, and 33-24-05-506; or

2. All of the requirements of sections 33-24-05-504 (except subsection 2 of section 33-24-05-504), 33-24-05-505, and 33-24-05-506.

History: Effective January 1, 1994.
General Authority: NDCC 23.20.3-03.
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-504. Design and operating requirements.

1. Drip pads must:

   a. Be constructed of nonearthen materials, excluding wood and nonstructurally supported asphalt;

   b. Be sloped to free-drain treated wood drippage, rain and other waters, or solutions of drippage and water or other wastes to the associated collection system;

   c. Have a curb or berm around the perimeter;

   d. Drip pads must meet and have on file the following:

      (1) Have a hydraulic conductivity of less than or equal to $1x10^{-7}$

centimeters per second (~~e.g.,~~ for example, existing concrete drip pads must be sealed, coated, or covered with a surface material with a hydraulic conductivity of less than or equal to $1x10^{-7}$ centimeters per second), such that the entire surface where drippage occurs or may run across is capable of containing such drippage and mixtures of drippage and precipitation, materials, or other wastes while being routed to an associated collection system. This surface material must be maintained free of cracks and gaps that could adversely affect its hydraulic conductivity, and the material must be chemically compatible with the preservatives that contact the drip pad. The requirements of this provision apply only to existing drip pads and those drip pads for which the owner or operator elects to comply with subsection 1 of section 33-24-05-503 instead of subsection 2 of section 33-24-05-503.

(2) The owner or operator must obtain and keep on file at the facility a written assessment of the drip pad, reviewed and certified by an independent, qualified registered professional engineer that attests to the results of the evaluation. The assessment must be reviewed, updated, and recertified annually. The evaluation must document the extent to which the drip pad meets the design and operating standards of this section, except for subsection 2.

e. Be of sufficient structural strength and thickness to prevent failure due to physical contact, climatic conditions, the stress of daily operations (~~e.g.,~~ for example, variable and moving loads such as vehicle traffic, movement of wood, etc.).

Note: The department will generally consider applicable standards established by professional organizations generally recognized by the industry such as the American concrete institute (ACI) or the American society of testing and materials (ASTM) in judging the structural integrity requirement of this paragraph.

2. If an owner or operator elects to comply with subsection 2 of section 33-24-05-503 instead of subsection 1 of section 33-24-05-503, the drip pad must have:

a. A synthetic liner installed below the drip pad that is designed, constructed, and installed to prevent leakage from the drip pad into the adjacent subsurface soil or ground water or surface water at any time during the active life (including the closure period) of the drip pad. The liner must be constructed of materials that will prevent waste from being absorbed into the liner and to prevent releases into the adjacent subsurface soil or ground water or surface water during the active life of the facility. The liner must be:

(1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or drip pad leakage to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation (including stresses from vehicular traffic on the drip pad);

(2) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(3) Installed to cover all surrounding earth that could come in contact with the waste or leakage; and

b. A leakage detection system immediately above the liner that is designed, constructed, maintained, and operated to detect leakage from the drip pad. The leakage detection system must be:

(1) Constructed of materials that are:

(a) Chemically resistant to the waste managed in the drip pad and the leakage that might be generated; and

(b) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying materials and by any equipment used at the drip pad;

(2) Designed and operated to function without clogging through the scheduled closure of the drip pad; and

(3) Designed so that it will detect the failure of the drip pad or the presence of a release of hazardous waste or accumulated liquid at the earliest practicable time.

c. A leakage collection system immediately above the liner that is designed, constructed, maintained, and operated to collect leakage from the drip pad such that it can be removed from below the drip pad. The date, time, and quantity of any leakage collected in this system and removed must be documented in the operating log.

3. Drip pads must be maintained such that they remain free of cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the drip pad.

Note: See subsection 13 of section 33-24-05-504 for remedial action required if deterioration or leakage is detected.

4. The drip pad and associated collection system must be designed and operated to convey, drain, and collect liquid resulting from drippage or precipitation in order to prevent runoff.

5. Unless protected by a structure, as described in subsection 2 of section 33-24-05-501, the owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the drip pad during peak discharge from at least a twenty-four-hour, twenty-five-year storm, unless the system has sufficient excess capacity to contain any runoff that might enter the system.

6. Unless protected by a structure or cover as described in subsection 2 of section 33-24-05-501, the owner or operator must design, construct, operate,

and maintain a runoff management system to collect and control at least the water volume resulting from a twenty-four-hour, twenty-five-year storm.

7. The drip pad must be evaluated to determine that it meets the requirements of subsections 1 through 6 and the owner or operator must obtain a statement from an independent, qualified registered professional engineer certifying that the drip pad design meets the requirements.

8. Drippage and accumulated precipitation must be removed from the associated collection system as necessary to prevent overflow onto the drip pad.

9. The drip pad surface must be cleaned thoroughly in a manner and frequency such that accumulated residues of hazardous waste or other materials are removed, with residues being properly managed as hazardous waste, so as to allow weekly inspections of the entire drip pad surface without interference or hindrance from accumulated residues of hazardous waste or other materials on the drip pad. The owner or operator must document the date and time of each cleaning and the cleaning procedure used in the facility's operating log. The owner or operator must determine if the residues are hazardous as per section 33-24-03-02 and, if so, must manage them under article 33-24.

10. Drip pads must be operated and maintained in a manner to minimize tracking of hazardous waste or hazardous waste constituents off the drip pad as a result of activities by personnel or equipment.

11. After being removed from the treatment vessel, treated wood from pressure and nonpressure processes must be held on the drip pad until drippage has ceased. The owner or operator must maintain records sufficient to document that all treated wood is held on the pad following treatment in accordance with this requirement.

12. Collection and holding units associated with run-on and runoff control systems must be emptied or otherwise managed as soon as possible after storms to maintain design capacity of the system.

13. Throughout the active life of the drip pad and as specified in the permit, if the owner or operator detects a condition that may have caused or has caused a release of hazardous waste, the condition must be repaired within a reasonably prompt period of time following discovery, in accordance with the following procedures:

    a. Upon detection of a condition that may have caused or has caused a release of hazardous waste (~~e.g.,~~ for example, upon detection of leakage in the leak detection system), the owner or operator must:

        (1) Enter a record of the discovery in the facility operating log;

        (2) Immediately remove the portion of the drip pad affected by the condition from service;

        (3) Determine what steps must be taken to repair the drip pad and clean up any leakage from below the drip pad, and establish a schedule for accomplishing the repairs;

(4) Within twenty-four hours after discovery of the condition, notify the department of the condition and, within ten working days, provide written notice to the department with a description of the steps that will be taken to repair the drip pad and clean up any leakage, and the schedule for accomplishing this work.

b. The department will review the information submitted, make a determination regarding whether the pad must be removed from service completely or partially until repairs and clean up are complete, and notify the owner or operator of the determination and the underlying rationale in writing.

c. Upon completing all repairs and clean up, the owner or operator must notify the department in writing and provide a certification signed by an independent, qualified registered professional engineer, that the repairs and clean up have been completed according to the written plan submitted in accordance with paragraph 4 of subdivision a.

14. Should a permit be necessary, the department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

15. The owner or operator must maintain, as part of the facility operating log, documentation of past operating and waste handling practices. This must include identification of preservative formulations used in the past, a description of drippage management practices, and a description of treated wood storage and handling practices.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-505. Inspections.

1. During construction or installation, liners and cover systems (for example, membranes, sheets, or coatings) must be inspected for uniformity, damage, and imperfections (~~e.g.,~~ for example, holes, cracks, thin spots, or foreign materials). Immediately after construction or installation, liners must be inspected and certified as meeting the requirements of section 33-24-05-504 by an independent, qualified registered professional engineer. This certification must be maintained at the facility as part of the facility operating record. After installation, liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters.

2. While a drip pad is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

a. Deterioration, malfunctions, or improper operation of run-on and runoff control systems;

b. The presence of leakage in and proper functioning of leak detection system.

c. Deterioration or cracking of the drip pad surface.

Note: See subsection 13 of section 33-24-05-504 for remedial action required if deterioration or leakage is detected.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-506. Closure.

1. At closure, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (pad, liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leakage, and manage them as hazardous waste.

2. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in subsection 1, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility and perform postclosure care in accordance with closure and postclosure care requirements that apply to landfills in section 33-24-05-180. For permitted units, the requirement to have a permit continues throughout the postclosure period. In addition, for the purpose of closure, postclosure, and financial responsibility, such a drip pad is then considered to be landfill, and the owner or operator must meet all of the requirements for landfills specified in sections 33-24-05-59 through 33-24-05-88.

3. Drip pad:

   a. The owner or operator of an existing drip pad, as defined in section 33-24-05-501, that does not comply with the liner requirements of subdivision a of subsection 2 of section 33-24-05-504 must:

      (1) Include in the closure plan for the drip pad under section 33-24-05-61 both a plan for complying with subsection 1 and a contingent plan for complying with subsection 2 in case not all contaminated subsoils can be practicably removed at closure; and

      (2) Prepare a contingent postclosure plan under section 33-24-05-67 for complying with subsection 2 in case not all contaminated subsoils can be practicably removed at closure.

   b. The cost estimates calculated under sections 33-24-05-61 and 33-24-05-76 for closure and postclosure care of a drip pad must include the cost of complying with the contingent closure plan and the contingent postclosure plan, but are not required to include the cost of expected closure under subsection 1.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-507. [Reserved]

33-24-05-508. [Reserved]

33-24-05-509. [Reserved]

33-24-05-510. [Reserved]

33-24-05-511. [Reserved]

33-24-05-512. [Reserved]

33-24-05-513. [Reserved]

33-24-05-514. [Reserved]

33-24-05-515. [Reserved]

33-24-05-516. [Reserved]

33-24-05-517. [Reserved]

33-24-05-518. [Reserved]

33-24-05-519. [Reserved]

33-24-05-520. [Reserved]

33-24-05-521. [Reserved]

33-24-05-522. [Reserved]

33-24-05-523. [Reserved]

33-24-05-524. [Reserved]

33-24-05-525. Applicability to hazardous waste burned in boilers and industrial furnaces.

~~1. The regulations in sections 33-24-05-144 through 33-24-05-159 apply to hazardous waste burned or processed in a boiler or industrial furnace (as defined in section 33-24-01-04) irrespective of the purpose of burning or processing, except as provided by subsection 2.~~

~~2. The following hazardous wastes and facilities are not subject to regulation:~~

~~a. Used oil burned for energy recovery that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14. Such used oil is subject to regulation under sections 33-24-05-600 through 33-24-05-689;~~

~~b. Gas recovered from hazardous or solid waste landfills when such gas is burned for energy recovery;~~

~~c. Hazardous wastes that are exempt from regulation under section 33-24-02-04 and paragraphs 5 through 8 7 of subdivision c of subsection 1 of section 33-24-02-06, and hazardous wastes that are subject to the special requirements for conditionally exempt small quantity generators under section 33-24-02-05; and~~

~~d. Coke ovens, if the only hazardous waste burned is hazardous waste no. K087, decanter tank tar sludge from coking operations.~~

1. The regulations of sections 33-24-05-525 through 33-24-05-549 apply to hazardous waste burned or processed in a boiler or industrial furnace (as defined in section 33-24-01-04) irrespective of the purpose of burning or processing, except as provided by subsections 2, 3, 4 and 6. In sections 33-24-05-525 through 33-24-05-549, the term "burn" means burning for energy recovery or destruction, or processing for materials recovery or as an ingredient. The emissions standards of sections 33-24-05-529 through 33-24-05-532 apply to facilities operating under interim status or under a Resource Conservation and Recovery Act operating permit as specified in sections 33-24-05-527 and 33-24-05-528.

2. The following hazardous wastes and facilities are not subject to regulation under sections 33-24-05-525 through 33-24-05-549:

   a. Used oil burned for energy recovery that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14. Such used oil is subject to regulation under sections 33-24-05-600 through 33-24-05-689;

   b. Gas recovered from hazardous or solid waste landfills when such gas is burned for energy recovery;

   c. Hazardous wastes that are exempt from regulation under section 33-24-02-04 and paragraphs 4 through 6 of subdivision c of subsection 1 of section 33-24-02-06, and hazardous wastes that are subject to the special requirements for conditionally exempt small quantity generators under section 33-24-02-05; and

   d. Coke ovens, if the only hazardous waste burned is hazardous waste number K087, decanter tank tar sludge from coking operations.

3. Owners and operators of smelting, melting, and refining furnaces (including pyrometallurgical devices such as cupolas, sintering machines, roasters, and foundry furnaces, but not including cement kilns, aggregate kilns, or halogen acid furnaces burning hazardous waste) that process hazardous waste solely for metal recovery are conditionally exempt from regulation under sections 33-24-05-525 through 33-24-05-549, except for sections 33-24-05-526 and 33-24-05-537.

   a. To be exempt from sections 33-24-05-527 through 33-24-05-536, an owner or operator of a metal recovery furnace or mercury recovery furnace must comply with the following requirements, except that an owner or operator of a lead or a nickel-chromium recovery furnace, or a metal recovery furnace that burns baghouse bags used to capture metallic dusts emitted by steel manufacturing, must comply with the requirements of subdivision

c:

(1) Provide a one-time written notice to the department indicating the following:

(a) The owner or operator claims exemption under this subsection;

(b) The hazardous waste is burned solely for metal recovery consistent with the provisions of subdivision b of subsection 3;

(c) The hazardous waste contains recoverable levels of metals; and

(d) The owner or operator will comply with the sampling and analysis and recordkeeping requirements of this subsection;

(2) Sample and analyze the hazardous waste and other feedstocks as necessary to comply with the requirements of this subsection under procedures specified by test methods for evaluating solid waste, physical/chemical methods, SW-846, incorporated by reference in section 33-24-01-05 or alternative methods that meet or exceed the SW-846 method performance capabilities. If SW-846 does not prescribe a method for a particular determination, the owner or operator shall use the best available method; and

(3) Maintain at the facility until closure of the boiler or industrial furnace unit records to document compliance with the provisions of section 33-24-05-525 including limits on levels of toxic organic constituents and British thermal units value of the waste, and levels of recoverable metals in the hazardous waste compared to normal nonhazardous waste feedstocks.

b. A hazardous waste meeting either of the following criteria is not processed solely for metal recovery:

(1) The hazardous waste has a total concentration of organic compounds listed in appendix V of chapter 33-24-02 exceeding five hundred parts per million by weight, as-fired, and so is considered to be burned for destruction. The concentration of organic compounds in a waste as-generated may be reduced to the five hundred parts per million limit by bona fide treatment that removes or destroys organic constituents. Blending for dilution to meet the five hundred parts per million limit is prohibited and documentation that the waste has not been impermissibly diluted must be retained in the records required by paragraph 3 of subdivision a; or

(2) The hazardous waste has a heating value of five thousand British thermal units per pound or more, as-fired, and so is considered to be burned as fuel. The heating value of a waste as-generated may be reduced to below the five thousand British thermal units per pound limit by bona fide treatment that removes or destroys organic constituents. Blending for dilution to meet the five thousand British thermal units per pouund limit is prohibited and documentation that the waste has not been impermissibly diluted must

be retained in the records required by paragraph 3 of subdivision a.

c. To be exempt from sections 33-24-05-527 through 33-24-05-536, an owner or operator of a lead or nickel-chromium or mercury recovery furnace, or a metal recovery furnace that burns baghouse bags used to capture metallic dusts emitted by steel manufacturing, must provide a one-time written notice to the department identifying each hazardous waste burned and specifying whether the owner or operator claims an exemption for each waste under this subdivision or subdivision a of subsection 3. The owner or operator must comply with the requirements of subdivision a of subsection 3 for those wastes claimed to be exempt under that subdivision and must comply with the requirements below for those wastes claimed to be exempt under this subdivision.

(1) The hazardous wastes listed in appendices XXVI, XXVII and XXVIII of chapter 33-24-05, and baghouse bags used to capture metallic dusts emitted by steel manufacturing are exempt from the requirements of subdivision a of subsection 3, provided that:

(a) A waste listed in appendix XXVI must contain recoverable levels of lead, a waste listed in appendix XXVII must contain recoverable levels of nickel or chromium, a waste listed in appendix XXVIII must contain recoverable levels of mercury and contain less than five hundred parts per million organic constituents listed in appendix V of chapter 33-24-02 and baghouse bags used to capture metallic dusts emitted by steel manufacturing must contain recoverable levels of metal; and

(b) The waste does not exhibit the toxicity characteristic of section 33-24-02-14 for an organic constituent; and

(c) The waste is not a hazardous waste listed in sections 33-24-02-15 through 33-24-02 19 because it is listed for an organic constituent as identified in appendix V of chapter 33-24-02; and

(d) The owner or operator certifies in the one-time notice that hazardous waste is burned under the provisions of subdivision c of subsection 3 and that sampling and analysis will be conducted or other information will be obtained as necessary to ensure continued compliance with these requirements. Sampling and analysis shall be conducted according to paragraph 2 of subdivision a of subsection 3 and records to document compliance with subdivision c of subsection 3 shall be kept until closure of the boiler or industrial furnace unit.

(2) The department may decide on a case-by-case basis that the toxic organic constituents in a material listed in appendix XXVI, XXVII, or XXVIII of chapter 33-24-05 that contains a total concentration of more than five hundred parts per million toxic organic compounds listed in appendix V of chapter 33-24-02, may pose a hazard to human health and the environment when burned in a metal recovery furnace

exempt from the requirements of sections 33-24-05-525 through 33-24-05-549. In that situation, after adequate notice and opportunity for comment, the metal recovery furnace will become subject to the requirements of sections 33-24-05-525 through 33-24-05-549 when burning that material. In making the hazard determination, the department will consider the following factors:

(a) The concentration and toxicity of organic constituents in the material; and

(b) The level of destruction of toxic organic constituents provided by the furnace; and

(c) Whether the acceptable ambient levels established in appendix XIX or XX of chapter 33-24-05 may be exceeded for any toxic organic compound that may be emitted based on dispersion modeling to predict the maximum annual average offsite ground level concentration.

4. The standards for direct transfer operations under section 33-24-05-536 apply only to facilities subject to the permit standards of section 33-24-05-527 or the interim status standards of section 33-24-05-528.

5. The management standards for residues under section 33-24-05-537 apply to any boiler or industrial furnace burning hazardous waste.

6. Owners and operators of smelting, melting, and refining furnaces (including pyrometallurgical devices such as cupolas, sintering machines, roasters, and foundry furnaces) that process hazardous waste for recovery of economically significant amounts of the precious metals gold, silver, platinum, palladium, iridium, osmium, rhodium, or ruthenium, or any combination of these are conditionally exempt from regulation under sections 33-24-05-525 through 33-24-05-549, except for section 33-24-05-537. To be exempt from sections 33-24-05-526 through 33-24-05-536, an owner or operator must:

a. Provide a one-time written notice to the department indicating the following:

(1) The owner or operator claims exemption under subsection 6;

(2) The hazardous waste is burned solely for metal recovery consistent with the provisions of subdivision b of subsection 3; and

(3) The owner or operator will comply with the sampling and analysis and recordkeeping requirements of this section; and

b. Sample and analyze the hazardous waste as necessary to document that the waste is burned for recovery of economically significant amounts of precious metal using procedures specified by Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, incorporated by reference in section 33-24-01-05 or alternative methods that meet or exceed the SW-846 method performance capabilities. If SW-846 does not prescribe a method for a particular determination, the owner or operator shall use the best available method; and

c. Maintain at the facility until closure of the boiler or industrial furnace unit records to document that all hazardous wastes burned are burned for recovery of economically significant amounts of precious metal.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-10

33-24-05-526. ~~Small quantity onsite burner exemption.~~ Management prior to burning.

~~1. Exempt quantities. Owners and operators of facilities that burn hazardous waste in an onsite boiler or industrial furnace are exempt from the requirements of section 33-24-05-525 provided that:~~

~~a. The quantity of hazardous waste burned in a device for a calendar month does not exceed the limits provided in the following table based on the terrain-adjusted effective stack height as defined in section 33-24-05-527:~~

~~Exempt Quantities for Small Quantity Burner Exemption~~

~~Terrain-Adjusted Effective Stack Height of Device (meters)~~	~~Allowable Hazardous Waste Burning Rate (gallons/month)~~	~~Terrain-Adjusted Effective Stack Height of Device (meters)~~	~~Allowable Hazardous Waste Burning Rate (gallons/month)~~
~~0 to 3.9~~	~~0~~	~~40.0 to 44.9~~	~~210~~
~~4.0 to 5.9~~	~~13~~	~~45.0 to 49.9~~	~~260~~
~~6.0 to 7.9~~	~~18~~	~~50.0 to 54.9~~	~~330~~
~~8.0 to 9.9~~	~~27~~	~~55.0 to 59.9~~	~~400~~
~~10.0 to 11.9~~	~~40~~	~~60.0 to 64.9~~	~~490~~
~~12.0 to 13.9~~	~~48~~	~~65.0 to 69.9~~	~~610~~
~~14.0 to 15.9~~	~~59~~	~~70.0 to 74.9~~	~~680~~
~~16.0 to 17.9~~	~~69~~	~~75.0 to 79.9~~	~~760~~
~~18.0 to 19.9~~	~~76~~	~~80.0 to 84.9~~	~~850~~
~~20.0 to 21.9~~	~~84~~	~~85.0 to 89.9~~	~~960~~
~~22.0 to 23.9~~	~~93~~	~~90.0 to 94.9~~	~~1,100~~
~~24.0 to 25.9~~	~~100~~	~~95.0 to 99.9~~	~~1,200~~
~~26.0 to 27.9~~	~~110~~	~~100.0 to 104.9~~	~~1,300~~
~~28.0 to 29.9~~	~~130~~	~~105.0 to 109.9~~	~~1,500~~
~~30.0 to 34.9~~	~~140~~	~~110.0 to 114.9~~	~~1,700~~
~~35.0 to 39.9~~	~~170~~	~~115.0 or greater~~	~~1,900~~

~~b. The maximum hazardous waste firing rate does not exceed at any time one percent of the total fuel requirements for the device (hazardous waste plus other fuel) on a total heat input or mass input basis, whichever results in the lower mass feed rate of hazardous waste.~~

~~c. The hazardous waste has a minimum heating value of five thousand British thermal units per pound, as generated; and~~

~~d. The hazardous waste fuel does not contain (and is not derived from) hazardous waste numbers F020, F021, F022, F023, F026, or F027.~~

~~2. Mixing with nonhazardous fuels. If hazardous waste fuel is mixed with a nonhazardous fuel, the quantity of hazardous waste before such mixing is used to comply with subsection 1.~~

~~3. Multiple stacks. If an owner or operator burns hazardous waste in more than~~

~~one onsite boiler or industrial furnace exempt under this section, the quantity limits provided by subdivision a of subsection 1 are implemented according to the following equation:~~

~~$$\sum_{i=1}^{n} \frac{\text{Actual Quantity Burned}_{(i)}}{\text{Allowable Quantity Burned}_{(i)}} \leq 1.0$$~~

~~where:~~

~~n means the number of stacks;~~

~~Actual Quantity Burned means the waste quantity burned per month in device "i";~~

~~Allowable Quantity Burned means the maximum allowable exempt quantity for stack "i" from the table in subdivision a of subsection 1.~~

~~Note: Hazardous wastes that are subject to the special requirements for small quantity generators under section 33-24-02-05 may be burned in an offsite device under the exemption provided by section 33-24-05-526, but must be included in the quantity determination for the exemption.~~

~~4. Notification requirements. The owner or operator of facilities qualifying for the small quantity burner exemption under this section must provide a one-time signed, written notice to the department indicating the following:~~

~~a. The combustion unit is operating as a small quantity burner of hazardous waste;~~

~~b. The owner and operator are in compliance with the requirements of this section; and~~

~~c. The maximum quantity of hazardous waste that the facility may burn per month as provided by subdivision a of subsection 1.~~

~~5. Recordkeeping requirements. The owner or operator must maintain at the facility for at least three years sufficient records documenting compliance with the hazardous waste quantity, firing rate, and heating value limits of this section. At a minimum, these records must indicate the quantity of hazardous waste and other fuel burned in each unit per calendar month, and the heating value of the hazardous waste.~~

1. Generators. Generators of hazardous waste that is burned in a boiler or industrial furnace are subject to chapter 33-24-03.

2. Transporters. Transporters of hazardous waste that is burned in a boiler or industrial furnace are subject to chapter 33-24-04.

3. Storage facilities.

   a. Owners and operators of facilities that store hazardous waste that is burned in a boiler or industrial furnace are subject to the applicable

provisions of sections 33-24-05-01 through 33-24-05-190, 33-24-05-300 through 33-24-05-524, 33-24-05-550 through 33-24-05-559, and subsection 5 of section 33-24-06-16, except as provided by subdivision b. These standards apply to storage by the burner as well as to storage facilities operated by intermediaries (processors, blenders, distributors, etc.) between the generator and the burner.

b. Owners and operators of facilities that burn, in an onsite boiler or industrial furnace exempt from regulation under the small quantity burner provisions of section 33-24-05-533, hazardous waste that they generate are exempt from regulation under sections 33-24-05-01 through 33-24-05-190, 33-24-05-300 through 33-24-05-524, 33-24-05-550 through 33-24-05-559, and subsection 5 of section 33-24-06-16 aplicable to storage units for those storage units that store mixtures of hazardous waste and the primary fuel to the boiler or industrial furnace in tanks that feed the fuel mixture directly to the burner. Storage of hazardous waste prior to mixing with the primary fuel is subject to regulation as prescribed in subdivision a.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-527. ~~Terrain-adjusted effective stack height (TESH).~~ Permit standards for burners.

~~1. The terrain-adjusted effective stack height is determined according to the following equation:~~

~~TESH=Ha+H1-Tr~~

~~where:~~

~~Ha=Actual physical stack height~~

~~H1=Plume rise as determined from appendix XIV as a function of stack flow rate and stack gas exhaust temperature.~~

~~Tr=Terrain rise within five kilometers of the stack.~~

~~2. The stack height (Ha) may not exceed good engineering practice as specified in 40 CFR 51.100(ii).~~

~~3. If the terrain-adjusted effective stack height for a particular facility is not listed in the table in the appendices, the nearest lower terrain-adjusted effective stack height listed in the table shall be used. If the terrain-adjusted effective stack height is four meters or less, a value of four meters shall be used.~~

1. Applicability.

a. General. Owners and operators of boilers and industrial furnaces burning hazardous waste and not operating under interim status must comply with

the requirements and subdivision ff of subsection 2 of section 33-24-06-17 and subsection 4 of section 33-24-06-19, unless exempt under the small quantity burner exemption of section 33-24-05-533.

b. Applicability of sections 33-24-05-01 through 33-24-05-190, 33-24-05-300 through 33-24-05-554, and 33-24-05-550 through 33-24-05-559 standards. Owners and operators of boilers and industrial furnaces that burn hazardous waste are subject to the following provisions of sections 33-24-05-01 through 33-24-05-190, 33-24-05-300 through 33-24-05-524, and 33-24-05-550 through 33-24-05-559, except as provided otherwise by sections 33-24-05-525 through 33-24-05-549:

(1) In section 33-24-05-01, subsection 9;

(2) In sections 33-24-05-02 through 33-24-05-14, sections 33-24-05-02 through 33-24-05-09;

(3) In sections 33-24-05-15 through 33-24-05-25, sections 33-24-05-15 through 33-24-05-20;

(4) In sections 33-24-05-26 through 33-24-05-36, sections 33-24-05-26 through 33-24-05-31;

(5) In sections 33-24-05-37 through 33-24-05-46, the applicable provisions of sections 33-24-05-38 through 33-24-05-44;

(6) In sections 33-24-05-47 through 33-24-05-58, sections 33-24-05-47 and 33-24-05-58;

(7) In sections 33-24-05-59 through 33-24-05-73, sections 33-24-05-60 through 33-24-05-64;

(8) In sections 33-24-05-74 through 33-24-05-88, 33-24-05-75, 33-24-05-76, 33-24-05-77, and 33-24-05-79 through 33-24-05-81, except that the state and federal governments are exempt from the requirements of sections 33-24-05-74 through 33-24-05-88; and

(9) Sections 33-24-05-420 through 33-24-05-449, except subsection 1 of section 33-24-05-420.

2. Hazardous waste analysis.

a. The owner or operator must provide an analysis of the hazardous waste that quantifies the concentration of any constituent identified in appendix V of chapter 33-24-02 that may reasonably be expected to be in the waste. Such constituents must be identified and quantified if present, at levels detectable by analytical procedures prescribed by Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 as incorporated by reference in section 33-24-01-05. Alternative methods that meet or exceed the method performance capabilities of SW-846 methods may be used. If SW-846 does not prescribe a method for a particular determination, the owner or operator shall use the best available method. The appendix V of chapter 33-24-02 constituents excluded from this analysis must be identified and the basis for their exclusion explained.

This analysis will be used to provide all information required by sections 33-24-05-525 through 33-24-05-549 and subdivision ff of subsection 2 of section 33-24-06-17 and subsection 4 of section 33-24-06-19 and to enable the permit writer to prescribe such permit conditions as necessary to protect human health and the environment. Such analysis must be included as a portion of the part B permit application, or, for facilities operating under the interim status standards of sections 33-24-05-525 through 33-24-05-549, as a portion of the trial burn plan that may be submitted before the part B application under provisions of subdivision g of subsection 4 of section 33-24-06-19 as well as any other analysis required by the permit authority in preparing the permit. Owners and operators of boilers and industrial furnaces not operating under the interim status standards must provide the information required by subdivision ff of subsection 2 of section 33-24-06-17 or subdivision c of subsection 4 of section 33-24-06-19 in the part B application to the greatest extent possible.

b. Throughout normal operation, the owner or operator must conduct sampling and analysis as necessary to ensure that the hazardous waste, other fuels, and industrial furnace feedstocks fired into the boiler or industrial furnace are within the physical and chemical composition limits specified in the permit.

3. Emissions standards. Owners and operators must comply with emissions standards provided by sections 33-24-05-529 through 33-24-05-532.

4. Permits.

a. The owner or operator may burn only hazardous wastes specified in the facility permit and only under the operating conditions specified under subsection 5, except in approved trial burns under the conditions specified in subsection 4 of section 33-24-06-19.

b. Hazardous wastes not specified in the permit may not be burned until operating conditions have been specified under a new permit or permit modification, as applicable. Operating requirements for new wastes may be based on either trial burn results or alternative data included with part B of a permit application under subdivision ff of subsection 2 of section 33-24-06-17.

c. Boilers and industrial furnaces operating under the interim status standards of section 33-24-05-528 are permitted under procedures provided by subdivision g of subsection 4 of section 33-24-06-19.

d. A permit for a new boiler or industrial furnace (those boilers and industrial furnaces not operating under the interim status standards) must establish appropriate conditions for each of the applicable requirements, including but not limited to allowable hazardous waste firing rates and operating conditions necessary to meet the requirements of subsection 5, in order to comply with the following standards:

(1) For the period beginning with initial introduction of hazardous waste and ending with initiation of the trial burn, and only for the minimum time required to bring the device to a point of operational

readiness to conduct a trial burn, not to exceed a duration of seven hundred twenty hours operating time when burning hazardous waste, the operating requirements must be those most likely to ensure compliance with the emission standards of sections 33-24-05-529 through 33-24-05-532, based on the department's engineering judgment. If the applicant is seeking a waiver from a trial burn to demonstrate conformance with a particular emission standard, the operating requirements during this initial period of operation shall include those specified by the applicable provisions of sections 33-24-05-529, 33-24-05-530, 33-24-05-531, or 33-24-05-532. The department may extend the duration of this period for up to seven hundred twenty additional hours when good cause for the extension is demonstrated by the applicant.

(2) For the duration of the trial burn, the operating requirements must be sufficient to demonstrate compliance with the emissions standards of sections 33-24-05-529 through 33-24-05-532 and must be in accordance with the approved trial burn plan;

(3) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, submission of the trial burn results by the applicant, review of the trial burn results and modification of the facility permit by the department to reflect the trial burn results, the operating requirements must be those most likely to ensure compliance with the emission standards sections 33-24-05-529 through 33-24-05-532 based on the department's engineering judgment.

(4) For the remaining duration of the permit, the operating requirements must be those demonstrated in a trial burn or by alternative data specified in subdivision ff of subsection 2 of section 33-24-06-17, as sufficient to ensure compliance with the emissions standards of sections 33-24-05-529 through 33-24-05-532.

5. Operating requirements.

a. General. A boiler or industrial furnace burning hazardous waste must be operated in accordance with the operating requirements specified in the permit at all times where there is hazardous waste in the unit.

b. Requirements to ensure compliance with the organic emissions standards:

(1) Destruction and removal efficiency standard. Operating conditions will be specified either on a case-by-case basis for each hazardous waste burned as those demonstrated (in a trial burn or by alternative data as specified in subdivision ff of subsection 2 of section 33-24-06-17) to be sufficient to comply with the destruction and removal efficiency performance standard of subsection 1 of section 33-24-05-529 or as those special operating requirements provided by subdivision d of subsection 1 of section 33-24-05-529 for the waiver of the destruction and removal efficiency trial burn. When the destruction and removal efficiency trial burn is not waived under subdivision d of subsection 1 of section 33-24-05-529, each set of operating requirements will specify the composition of the

hazardous waste (including acceptable variations in the physical and chemical properties of the hazardous waste which will not affect compliance with the destruction and removal efficiency performance standard) to which the operating requirements apply. For each such hazardous waste, the permit will specify acceptable operating limits including, but not limited to, the following conditions as appropriate:

(a) Feed rate of hazardous waste and other fuels measured and specified as prescribed in subdivision f;

(b) Minimum and maximum device production rate when producing normal product expressed in appropriate units, measured and specified as prescribed in subdivision f;

(c) Appropriate controls of the hazardous waste firing system;

(d) Allowable variation in boiler or industrial furnace system design or operating procedures;

(e) Minimum combustion gas temperature measured at a location indicative of combustion chamber temperature, measured and specified as prescribed in subdivision f;

(f) An appropriate indicator of combustion gas velocity, measured and specified as prescribed in subdivision f, unless documentation is provided under subsection 4 of section 33-24-06-19 demonstrating adequate combustion gas residence time; and

(g) Such other operating requirements as are necessary to ensure that the destruction and removal efficiency performance standard of subsection 1 of section 33-24-05-529 is met.

(2) Carbon monoxide and hydrocarbon standards. The permit must incorporate a carbon monoxide limit and, as appropriate, a hydrocarbon limit as provided by subsections 2 through 6 of section 33-24-05-529. The permit limits will be specified as follows:

(a) When complying with the carbon monoxide standard of subdivision a of subsection 2 of section 33-24-05-529, the permit limit is one hundred parts per million by volume;

(b) When complying with the alternative carbon monoxide standard under subsection 3 of section 33-24-05-529, the permit limit for carbon monoxide is based on the trial burn and is established as the average over all valid runs of the highest hourly rolling average carbon monoxide level of each run, and the permit limit for hydrocarbon is twenty parts per million by volume (as defined in subdivision a of subsection 3 of section 33-24-05-529), except as provided in subsection 6 of section 33-24-05-529.

(c) When complying with the alternative hydrocarbon limit for

industrial furnaces under subsection 6 of section 33-24-05-529, the permit limit for hydrocarbon and carbon monoxide is the baseline level when hazardous waste is not burned as specified by that subsection.

(3) Startup and shutdown. During startup and shutdown of the boiler or industrial furnace, hazardous waste (except waste fed solely as an ingredient under the tier I (or adjusted tier I) feed rate screening limits for metals and chloride/chlorine, and except low risk waste exempt from the trial burn requirements under subdivision e of subsection 1 of section 33-24-05-529 and sections 33-24-05-530, 33-24-05-531, and 33-24-05-532) must not be fed into the device unless the device is operating within the conditions of operation specified in the permit.

c. Requirements to ensure conformance with the particulate standard.

(1) Except as provided in paragraphs 2 and 3, the permit shall specify the following operating requirements to ensure conformance with the particulate standard specified in section 33-24-05-530:

(a) Total ash feed rate to the device from hazardous waste, other fuels, and industrial furnace feedstocks, measured and specified as prescribed in subdivision f;

(b) Maximum device production rate when producing normal product expressed in appropriate units, and measured and specified as prescribed in subdivision f;

(c) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(d) Allowable variation in boiler or industrial furnace system design including any air pollution control system or operating procedures; and

(e) Such other operating requirements as are necessary to ensure that the particulate standard in subsection 2 of section 33-24-05-536 is met.

(2) Permit conditions to ensure conformance with the particulate matter standard shall not be provided for facilities exempt from the particulate matter standard under subsection 2 of section 33-24-05-530;

(3) For cement kilns and lightweight aggregate kilns, permit conditions to ensure compliance with the particulate standard shall not limit the ash content of hazardous waste or other feed materials.

d. Requirements to ensure conformance with the metals emissions standard.

(1) For conformance with the tier I (or adjusted tier I) metals feed rate screening limits of subsection 2 or 5 of section 33-24-05-531,

the permit shall specify the following operating requirements:

(a) Total feed rate of each metal in hazardous waste, other fuels, and industrial furnace feedstocks measured and specified under provisions of subdivision f;

(b) Total feed rate of hazardous waste measured and specified as prescribed in subdivision f;

(c) A sampling and metals analysis program for the hazardous waste, other fuels, and industrial furnace feedstocks;

(2) For conformance with the tier II metals emission rate screening limits under subsection 3 of section 33-24-05-531 and the tier III metals controls under subsection 4 of section 33-24-05-531, the permit shall specify the following operating requirements:

(a) Maximum emission rate for each metal specified as the average emission rate during the trial burn;

(b) Feed rate of total hazardous waste and pumpable hazardous waste, each measured and specified as prescribed in paragraph 1 of subdivision f;

(c) Feed rate of each metal in the following feedstreams, measured and specified as prescribed in subdivision f:

[1] Total feedstreams;

[2] Total hazardous waste feed;

[3] Total pumpable hazardous waste feed;

[4] Total feed rate of chlorine and chloride in total feedstreams measured and specified as prescribed in subdivision f;

[5] Maximum combustion gas temperature measured at a location indicative of combustion chamber temperature, and measured and specified as prescribed in subdivision f;

[6] Maximum flue gas temperature at the inlet to the particulate matter air pollution control system measured and specified as prescribed in subdivision f;

[7] Maximum device production rate when producing normal product expressed in appropriate units and measured and specified as prescribed in subdivision f;

[8] Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(9) Allowable variation in boiler or industrial furnace system design including any air pollution control system or operating procedures; and

(10) Such other operating requirements as are necessary to ensure that the metals standards under subsection 3 of section 33-24-05-531 or subsection 4 of section 33-24-05-531 are met.

(3) For conformance with an alternative implementation approach approved by the department under subsection 6 of section 33-24-05-531, the permit will specify the following operating requirements:

(a) Maximum emission rate for each metal specified as the average emission rate during the trial burn;

(b) Feed rate of total hazardous waste and pumpable hazardous waste, each measured and specified as prescribed in paragraph 1 of subdivision f;

(c) Feed rate of each metal in the following feedstreams, measured and specified as prescribed in subdivision f;

[1] Total hazardous waste feed; and

[2] Total pumpable hazardous waste feed;

(d) Total feed rate of chlorine and chloride in total feedstreams measured and specified prescribed in subdivision f;

(e) Maximum combustion gas temperature measured at a location indicative of combustion chamber temperature, and measured and specified as prescribed in subdivision f;

(f) Maximum flue gas temperature at the inlet to the particulate matter air pollution control system measured and specified as prescribed in subdivision f;

(g) Maximum device production rate when producing normal product expressed in appropriate units and measured and specified as prescribed in subdivision f;

(h) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(i) Allowable variation in boiler or industrial furnace system design including any air pollution control system or operating procedures; and

(j) Such other operating requirements as are necessary to ensure that the metals standards under subsection 3 of section 33-24-05-531 or subsection 4 of section 33-24-05-531 are met.

e. Requirements to ensure conformance with the hydrogen chloride and chlorine gas standards.

(1) For conformance with the tier I total chloride and chlorine feed rate screening limits of subdivision a of subsection 2 of section 33-24-05-532, the permit will specify the following operating requirements:

(a) Feed rate of total chloride and chlorine in hazardous waste, other fuels, and industrial furnace feedstocks measured and specified as prescribed in subdivision f;

(b) Feed rate of total hazardous waste measured and specified as prescribed in subdivision f;

(c) A sampling and analysis program for total chloride and chlorine for the hazardous waste, other fuels, and industrial furnace feedstocks;

(2) For conformance with the tier II hydrogen chloride and for chlorine emission rate screening limits under subdivision b of subsection 2 of section 33-24-05-532 and the tier III hdyrogen chloride and chlorine controls under subsection 3 of section 33-24-05-532, the permit will specify the following operating requirements:

(a) Maximum emission rate for hydrogen chloride and for chlorine specified as the average emission rate during the trial burn;

(b) Feed rate of total hazardous waste measured and specified as prescribed in subdivision f;

(c) Total feed rate of chlorine and chloride in total feedstreams, measured and specified as prescribed in subdivision f;

(d) Maximum device production rate when producing normal product expressed in appropriate units, measured and specified as prescribed in subdivision f;

(e) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(f) Allowable variation in boiler or industrial furnace system design including any air pollution control system or operating procedures; and

(g) Such other operating requirements as are necessary to ensure that the hydrogen chloride and chlorine standards under subdivision b of subsection 2 or subsection 3 of section 33-24-05-532 are met.

f. Measuring parameters and establishing limits based on trial burn data.

(1) General requirements. As specified in subdivisions b through e,

each operating parameter shall be measured, and permit limits on the parameter shall be established, according to either of the following procedures:

(a) Instantaneous limits. A parameter may be measured and recorded on an instantaneous basis (for example, the value that occurs at any time) and the permit limit specified as the time-weighted average during all valid runs of the trial burn; or

(b) Hourly rolling average.

[1] The limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:

[a] A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.

[b] An hourly rolling average is the arithmetic mean of the sixty most recent one-minute average values recorded by the continuous monitoring system.

(2) The permit limit for the parameter shall be established based on trial burn data as the average over all valid test runs of the highest hourly rolling average value for each run.

(2) Rolling average limits for carcinogenic metals and lead. Feed rate limits for the carcinogenic metals (for example, arsenic, beryllium, cadmium and chromium) and lead may be established either on an hourly rolling average basis as prescribed by paragraph 1 of subdivision f or on (up to) a twenty-four hour rolling average basis. If the owner or operator elects to use an average period from two to twenty-four hours:

(a) The feed rate of each metal shall be limited at any time to ten times the feed rate that would be allowed on an hourly rolling average basis;

(b) The continuous monitor shall meet the following specifications:

[1] A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.

[2] The rolling average for the selected averaging period is

defined as the arithmetic mean of one-hour block averages for the averaging period. A one-hour block average is the arithmetic mean of the one-minute averages recorded during the sixty-minute period beginning at one minute after the beginning of preceding clock hour; and

(c) The permit limit for the feed rate of each metal shall be established based on trial burn data as the average overall valid test runs of the highest hourly rolling average feed rate for each run.

(3) Feed rate limits for metals, total chloride and chlorine, and ash. Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the substance (for example, metals, chloride and chlorine, and ash) in each feedstream and the flow rate of the feedstream. To monitor the feed rate of these substances, the flow rate of each feedstream must be monitored under the continuous monitoring requirements of paragraphs 1 and 2 of subdivision f.

(4) Conduct of trial burn testing.

(a) If compliance with all applicable emissions standards of sections 33-24-05-529 through 33-24-05-532 is not demonstrated simultaneously during a set of test runs, the operating conditions of additional test runs required to demonstrate compliance with remaining emissions standards must be as close as possible to the original operating conditions.

(b) Prior to obtaining test data for purposes of demonstrating compliance with the emissions standards of sections 33-24-05-529 through 33-24-05-532 or establishing limits on operating parameters under this section, the facility must operate under trial burn conditions for a sufficient period to reach steady-state operations. The department may determine, however, that industrial furnaces that recycle collected particulate matter back into the furnace and that comply with an alternative implementation approach for metals under subsection 6 of section 33-24-05-531 need not reach steady state conditions with respect to the flow of metals in the system prior to beginning compliance testing for metals emissions.

(c) Trial burn data on the level of an operating parameter for which a limit must be established in the permit must be obtained during emissions sampling for the pollutant(s) (for example, metals, particulate matter, hydrogen chloride, and chlorine organic compounds) for which the parameter must be established as specified by this subsection.

g. General requirements.

(1) Fugitive emissions. Fugitive emissions must be controlled by:

(a) Keeping the combustion zone totally sealed against fugitive

emissions; or

(b) Maintaining the combustion zone pressure lower than atmospheric pressure; or

(c) An alternate means of control demonstrated (with part B of the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(2) Automatic waste feed cutoff. A boiler or industrial furnace must be operated with a functioning system that automatically cuts off the hazardous waste feed when operating conditions deviate from those established under this section. The department may limit the number of cutoffs per an operating period on a case-by-case basis. In addition:

(a) The permit limit for (the indicator of) minimum combustion chamber temperature must be maintained while hazardous waste or hazardous waste residues remain in the combustion chamber,

(b) Exhaust gases must be ducted to the air pollution control system operated in accordance with the permit requirements while hazardous waste or hazardous waste residues remain in the combustion chamber; and

(c) Operating parameters for which permit limits are established must continue to be monitored during the cutoff, and the hazardous waste feed shall not be restarted until the levels of those parameters comply with the permit limits. For parameters that may be monitored on an instantaneous basis, the department will establish a minimum period of time after a waste feed cutoff during which the parameter must not exceed the permit limit before the hazardous waste feed may be restarted.

(3) Changes. A boiler or industrial furnace must cease burning hazardous waste when changes in combustion properties, or feed rates of the hazardous waste, other fuels, or industrial furnace feedstocks, or changes in the boiler or industrial furnace design or operating conditions deviate from the limits as specified in the permit.

h. Monitoring and inspections.

(1) The owner or operator must monitor and record the following, at a minimum, while burning hazardous waste:

(a) If specified by the permit, feed rates and composition of hazardous waste, other fuels, and industrial furnace feedstocks, and feed rates of ash, metals, and total chloride and chlorine;

(b) If specified by the permit, carbon monoxide, hydrocarbons, and

oxygen on a continuous basis at a common point in the boiler or industrial furnace downstream of the combustion zone and prior to release of stack gases to the atmosphere in accordance with operating requirements specified in paragraph 2 of subdivision b. Carbon monoxide, hydrocarbon, and oxygen monitors must be installed, operated, and maintained in accordance with methods specified in appendix XXIV of chapter 33-24-05;

(c) Upon the request of the department, sampling and analysis of the hazardous waste (and other fuels and industrial furnace feedstocks as appropriate), residues, and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the applicable standards of sections 33-24-05-529, 33-24-05-530, 33-24-05-531, and 33-24-05-532.

(2) All monitors shall record data in units corresponding to the permit limit unless otherwise specified in the permit.

(3) The boiler or industrial furnace and associated equipment (pumps, valves, pipes, fuel storage tanks, et cetera) must be subjected to thorough visual inspection when it contains hazardous waste, at least daily for leaks, spills, fugitive emissions, and signs of tampering.

(4) The automatic hazardous waste feed cutoff system and associated alarms must be tested at least once every seven days when hazardous waste is burned to verify operability, unless the applicant demonstrates to the department that weekly inspections will unduly restrict or upset operations and that less frequent inspections will be adequate. At a minimum, operational testing must be conducted at least once every thirty days.

(5) These monitoring and inspection data must be recorded and the records must be placed in the operating record required by section 33-24-05-40.

i. Direct transfer to the burner. If hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit, the owner and operator must comply with section 33-24-05-536.

j. Recordkeeping. The owner or operator must keep in the operating record of the facility all information and data required by this section until closure of the facility.

k. Closure. At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including, but not limited to, ash, scrubber waters, and scrubber sludges) from the boiler or industrial furnace.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-528. ~~[Reserved]~~ Interim status standards for burners.

1. Purpose, scope, applicability.

   a. General.

      (1) The purpose is to establish minimum national standards for owners and operators of "existing" boilers and industrial furnaces that burn hazardous waste where such standards define the acceptable management of hazardous waste during the period of interim status. The standards apply to owners and operators of existing facilities until either a permit is issued under subsection 4 of section 33-24-05-527 or until closure responsibilities identified in this section are fulfilled.

      (2) Existing or in existence means a boiler or industrial furnace that on or before August 21, 1991, is either in operation burning or processing hazardous waste or for which construction (including the ancillary facilities to burn or to process the hazardous waste) has commenced. A facility has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction; and either:

         (a) A continuous onsite, physical construction program has begun; or

         (b) The owner or operator has entered into contractual obligations-which cannot be canceled or modified without substantial loss for physical construction of the facility to be completed within a reasonable time.

      (3) If a boiler or industrial furnace is located at a facility that already has a permit or interim status, then the facility must comply with the applicable regulations dealing with permit modifications in section 33-24-06-14 or changes in interim status in subsection 5 of section 33-24-06-16.

   b. Exemptions. The requirements do not apply to hazardous waste and facilities exempt under subsection 2 of section 33-24-05-525, or section 33-24-05-533.

   c. Prohibition of burning dioxin-listed wastes. The following hazardous waste listed for dioxin and hazardous waste derived from any of these wastes may not be burned in a boiler or industrial furnace operating under interim status: F020, F021, F022, F023, F026, and F027.

   d. Applicability of interim status standards. Owners and operators of boilers and industrial furnaces that burn hazardous waste and are operating under interim status are subject to the provisions of subsection 5 of section 33-24-06-16.

e. Special requirements for furnaces. The following controls apply during interim status to industrial furnaces (for example, kilns, cupolas) that feed hazardous waste for a purpose other than solely as an ingredient (see paragraph 2 of subdivision e of subsection 1) at any location other than the hot end where products are normally discharged or where fuels are normally fired:

(1) Controls.

(a) The hazardous waste shall be fed at a location where combustion gas temperatures are at least eighteen hundred degrees Fahrenheit [982.2 degrees Celsius];

(b) The owner or operator must determine that adequate oxygen is present in combustion gases to combust organic constituents in the waste and retain documentation of such determination in the facility record;

(c) For cement kiln systems, the hazardous waste shall be fed into the kiln; and

(d) The hydrocarbon controls of subsection 3 of section 33-24-05-529 or subdivision e of subsection 3 of this section apply upon certification of compliance under subsection 3 irrespective of the carbon monoxide level achieved during the compliance test.

(2) Burning hazardous waste solely as an ingredient. A hazardous waste is burned for a purpose other than solely as an ingredient if it meets either of these criteria:

(a) The hazardous waste has a total concentration of nonmetal compounds listed in appendix V of chapter 33-24-02 exceeding five hundred parts per million by weight, as-fired, and so is considered to be burned for destruction. The concentration of nonmetal compounds in a waste as-generated may be reduced to the five hundred parts per million limit by bona fide treatment that removes or destroys nonmetal constituents. Blending for dilution to meet the five hundred parts per million limit is prohibited and documentation that the waste has not been impermissibly diluted must be retained in the facility record; or

(b) The hazardous waste has a heating value of five thousand British thermal units per pound or more, as-fired, and so is considered to be burned as fuel. The heating value of a waste as-generated may be reduced to below the five thousand British thermal units per pound limit by bona fide treatment that removes or destroys organic constituents. Blending to augment the heating value to meet the five thousand British thermal units per pound limit is prohibited and documentation that the waste has not been impermissibly blended must be retained in the facility record.

f. Restrictions on burning hazardous waste that is not a fuel. Prior to certification of compliance under subsection 3, owners and operators shall not feed hazardous waste that has a heating value less than five thousand British thermal units per pound as-generated (except that the heating value of a waste as-generated may be increased to above the five thousand British thermal units per pount limit by bona fide treatment; however, blending to augment the heating value to meet the five thousand British thermal units per pound limit is prohibited and records must be kept to document that impermissible blending has not occurred) in a boiler or industrial furnace, except that:

(1) Hazardous waste may be burned solely as an ingredient;

(2) Hazardous waste may be burned for purposes of compliance testing (or testing prior to compliance testing) for a total period of time not to exceed seven hundred twenty hours;

(3) Such waste may be burned if the department has documentation to show that, prior to August 21, 1991:

(a) The boiler or industrial furnace is operating under the interim status standards for incinerators or thermal treatment units provided by subsection 5 of section 33-24-06-16; and

(b) The boiler or industrial furnace met the interim status eligibility requirements under subsection 5 of section 33-24-06-16; and

(c) Hazardous waste with a heating value less than five thousand British thermal units per pound was burned prior to that date; or

(4) Such waste may be burned in a halogen acid furnace if the waste was burned as an excluded ingredient under subsection 5 of section 33-24-02-02 prior to February 21, 1991, and documentation is kept on file supporting this claim.

g. Direct transfer to the burner. If hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit, the owner and operator must comply with section 33-24-05-536.

2. Certification of precompliance.

a. General. The owner or operator must provide complete and accurate information specified in subdivision b to the department on or before August 21, 1991, and must establish limits for the operating parameters specified in subdivision c. Such information is termed a "certification of precompliance" and constitutes a certification that the owner or operator has determined that, when the facility is operated within the limits specified in subdivision c, the owner or operator believes that, using best engineering judgment, emissions of particulate matter, metals, and hydrogen chloride and chlorine are not likely to exceed the limits provided by sections 33-24-05-530, 33-24-05-531, and 33-24-05-532. The

facility may burn hazardous waste only under the operating conditions that the owner or operator establishes under subdivision c of subsection 2 until the owner or operator submits a revised certification of precompliance under subdivision h or a certification of compliance under subsection 3, or until a permit is issued.

b. Information required. The following information must be submitted with the certification of precompliance to support the determination that the limits established for the operating parameters identified in subdivision c are not likely to result in an exceedance of the allowable emission rates for particulate matter, metals, and hydrogen chloride and chlorine:

(1) General facility information:

(a) EPA identification number;

(b) Facility name, contact person, telephone number, and address;

(c) Description of boilers and industrial furnaces burning hazardous waste, including type and capacity of device;

(d) A scaled plot plan showing the entire facility and location of the boilers and industrial furnaces burning hazardous waste; and

(e) A description of the air pollution control system on each device burning hazardous waste, including the temperature of the flue gas at the inlet to the particulate matter control system.

(2) Except for facilities complying with the tier I or adjusted tier I feed rate screening limits for metals or total chlorine and chloride provided by subsection 2 or 5 of section 33-24-05-531 and subdivision a of subsection 2 or subsection 5 of section 33-24-05-532 respectively, the estimated uncontrolled (at the inlet to the air pollution control system) emissions of particulate matter, each metal controlled by section 33-24-05-531, and hydrogen chloride and chlorine, and the following information to support such determinations:

(a) The feed rate (pound per hour) of ash, chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium in each feedstream (hazardous waste, other fuels, industrial furnace feedstocks);

(b) The estimated partitioning factor to the combustion gas for the materials identified in subparagraph a of paragraph 2 of subdivision b of subsection 2 and the basis for the estimate and an estimate of the partitioning to hydrogen chloride and chloride of total chloride and chlorine in feed materials. To estimate the partitioning factor, the owner or operator must use either best engineering judgment or the procedures specified in appendix XXIV of chapter 33-24-05.

(c) For industrial furnaces that recycle collected particulate matter back into the furnace and that will certify compliance with the metals emissions standards under subparagraph a of paragraph 2 of subdivision c of subsection 3, the estimated enrichment factor for each metal. To estimate the enrichment factor, the owner or operator must use either best engineering judgment or the procedures specified in "Alternative Methodology for Implementing Metals Controls" in appendix XXIV of chapter 33-24-05.

(d) If best engineering judgment is used to estimate partitioning factors or enrichment factors under subparagraph b or c of paragraph 2 of subdivision b of subsection 2 or respectively, the basis for the judgment. When best engineering judgment is used to develop or evaluate data or information and make determinations under this section, the determinations must be made by a qualified, registered professional engineer and a certification of his or her determinations in accordance with subsection 4 of section 33-24-06-03 must be provided in the certification of precompliance.

(3) For facilities complying with the tier I or adjusted tier I feed rate screening limits for metals or total chlorine and chloride provided by subsection 2 or 5 of section 33-24-05-531 and subdivision a of subsection 2 or subsection 5 of section 33-24-05-532, the feed rate (pound per hour) of total chloride and chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium in each feedstream (hazardous waste, other fuels, industrial furnace feedstocks).

(4) For facilities complying with the tier II or tier III emission limits for metals or hydrogen chloride and chlorine (under subsection 3 or 4 of section 33-24-05-531 or subdivision b of subsection 2 or subsection 3 of section 33-24-05-532), the estimated controlled (outlet of the air pollution control system) emissions rates of particulate matter, each metal controlled by section 33-24-05-531, and hydrogen chloride and chlorine, and the following information to support such determinations:

(a) The estimated air pollution control system removal efficiency for particulate matter, hydrogen chloride and chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium.

(b) To estimate air pollution control system removal efficiency, the owner or operator must use either best engineering judgment or the procedures prescribed in appendix XXIV of chapter 33-24-05.

(c) If best engineering judgment is used to estimate air pollution control system removal efficiency, the basis for the judgment. Use of best engineering judgment must be in conformance with provisions of subparagraph d of paragraph 2 of subdivision b of subsection 2.

(5) Determination of allowable emissions rates for hydrogen chloride, chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium, and the following information to support such determinations:

(a) For all facilities:

[1] Physical stack height;

[2] Good engineering practice stack height as defined by 40 CFR 51.100(ii);

[3] Maximum flue gas flow rate;

[4] Maximum flue gas temperature;

[5] Attach a United States geological service topographic map (or equivalent) showing the facility location and surrounding land within five kilometers of the facility;

[6] Identify terrain type: complex or noncomplex; and

[7] Identify land use: urban or rural.

(b) For owners and operators using tier III site specific dispersion modeling to determine allowable levels under subsection 4 of section 33-24-05-531 or subsection 3 of section 33-24-05-532, or adjusted tier I feed rate screening limits under subsection 5 of section 33-24-05-531 or subsection 5 of section 33-24-05-532:

[1] Dispersion model and version used;

[2] Source of meteorological data;

[3] The dilution factor in micrograms per cubic meter per gram per second of emissions for the maximum annual average offsite (unless onsite is required) ground level concentration (maximum exposed individual location); and

[4] Indicate the maximum exposed individual location on the map required under item 5 of subparagraph a;

(6) For facilities complying with the tier II or tier III emissions rate controls for metals or hydrogen chloride and chlorine, a comparison of the estimated controlled emissions rates determined under paragraph 4 with the allowable emission rates determined under paragraph 5;

(7) For facilities complying with the tier I (or adjusted tier I) feed rate screening limits for metals or total chloride and chlorine, a comparison of actual feed rates of each metal and total chlorine and chloride determined under paragraph 3 to the tier I allowable feed rates;

(8) For industrial furnaces that feed hazardous waste for any purpose other than solely as an ingredient (as defined by paragraph 2 of subdivision e of subsection 1) at any location other than the product discharge end of the device, documentation of compliance with the requirements of subparagraph a, b, or c of paragraph 1 of subdivision e of subsection 1; and

(9) For industrial furnaces that recycle collected particulate matter back into the furnace and that will certify compliance with the metals emissions standards under subparagraph a of paragraph 2 of subdivision c of subsection 3:

(a) The applicable particulate matter standard in pound per hour; and

(b) The precompliance limit on the concentration of each metal in collected particulate matter.

c. Limits on operating conditions. The owner and operator shall establish limits on the following parameters consistent with the determinations made under subdivision b and certify (under provisions of subdivision i) to the department that the facility will operate within the limits during interim status when there is hazardous waste in the unit until revised certification of precompliance under subdivision h or certification of compliance under subsection 3:

(1) Feed rate of total hazardous waste and (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531) pumpable hazardous waste;

(2) Feed rate of each metal in the following feedstreams:

(a) Total feedstreams, except that industrial furnaces that comply with the alternative metals implementation approach under subdivision d must specify limits on the concentration of each metal in collected particulate matter in lieu of feed rate limits for total feedstreams;

(b) Total hazardous waste feed, unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531; and

(c) Total pumpable hazardous waste feed, unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531;

(3) Total feed rate of chlorine and chloride in total feedstreams;

(4) Total feed rate of ash in total feedstreams, except that the ash feed rate for cement kilns and lightweight aggregate kilns is not limited; and

(5) Maximum production rate of the device in appropriate units when producing normal product, unless complying with the tier I or

adjusted tier I feed rate screening limits for chlorine under subdivision a of subsection 2 or subsection 5 of section 33-24-05-532 and for all metals under subsection 2 or 5 of section 33-24-05-531, and the uncontrolled particulate emissions do not exceed the standard under section 33-24-05-530.

d. Operating requirements for furnaces that recycle particulate matter. Owners and operators of furnaces that recycle collected particulate matter back into the furnace and that will certify compliance with the metals emissions controls under subparagraph a of paragraph 2 of subdivision c of subsection 3 must comply with the special operating requirements provided in "Alternative Methodology for Implementing Metals Controls" in appendix XXIV of chapter 33-24-05.

e. Measurement of feed rates and production rate.

(1) General requirements. Limits on each of the parameters specified in subdivision c (except for limits on metals concentrations in collected particulate matter for industrial furnaces that recycle collected particulate matter) must be established and continuously monitored under either of the following methods:

(a) Instantaneous limits. A limit for a parameter may be established and continuously monitored on an instantaneous basis (for example, the value that occurs at any time) not to be exceeded at any time; or

(b) Hourly rolling average limits. A limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:

[1] A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.

[2] An hourly rolling average is the arithmetic mean of the sixty most recent one-minute average values recorded by the continuous monitoring system.

(2) Rolling average limits for carcinogenic metals and lead. Feed rate limits for the carcinogenic metals (arsenic, beryllium, cadmium, and chromium) and lead may be established either on an hourly rolling average basis as prescribed by subparagraph b of paragraph 1 or on (up to) a twenty-four hour rolling average basis. If the owner or operator elects to use an averaging period from two to twenty-four hours:

(a) The feed rate of each metal shall be limited at any time to ten times the feed rate that would be allowed on an hourly rolling average basis;

(b) The continuous monitor shall meet the following

specifications:

[1] A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.

[2] The rolling average for the selected averaging period is defined as the arithmetic mean of one-hour block averages for the averaging period. A one-hour block average is the arithmetic mean of the one minute averages recorded during the sixty-minute period beginning at one minute after the beginning of preceding clock hour.

(3) Feed rate limits for metals, total chloride and chlorine, and ash. Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the substance (for example, metals, chloride or chlorine, and ash) in each feedstream and the flow rate of the feedstream. To monitor the feed rate of these substances, the flow rate of each feedstream must be monitored under the continuous monitoring requirements of paragraphs 1 and 2 of subdivision e.

f. Public notice requirements at precompliance. On or before August 21, 1991, the owner or operator must submit a notice with the following information for publication in a major local newspaper of general circulation and send a copy of the notice to the appropriate units of state and local government. The owner or operator must provide to the department with the certification of precompliance evidence of submitting the notice for publication. The notice, which shall be entitled "Notice of Certification of Precompliance with Hazardous Waste Burning Requirements of subsection 2 of section 33-24-05-528", must include:

(1) Name and address of the owner and operator of the facility as well as the location of the device burning hazardous waste;

(2) Date that the certification of precompliance is submitted to the department;

(3) Brief description of the regulatory process required to comply with the interim status requirements including required emissions testing to demonstrate conformance with emissions standards for organic compounds, particulate matter, metals, and hydrogen chloride and chlorine;

(4) Types and quantities of hazardous waste burned including, but not limited to, source, whether solids or liquids, as well as an appropriate description of the waste;

(5) Type of device or devices in which the hazardous waste is burned including a physical description and maximum production rate of each device;

(6) Types and quantities of other fuels and industrial furnace feedstocks fed to each unit;

(7) Brief description of the basis for this certification of precompliance as specified in subdivision b of subsection 2;

(8) Locations where the record for the facility can be viewed and copied by interested parties. These records and locations shall at a minimum include:

(a) The administrative record kept by the department where the supporting documentation was submitted or another location designated by the department; and

(b) The boiler and industrial furnace correspondence file kept at the facility site where the device is located. The correspondence file must include all correspondence between the facility and the department and local regulatory officials, including copies of all certifications and notifications, such as the precompliance certification, precompliance public notice, notice of compliance testing, compliance test report, compliance certification, time extension requests and approvals or denials, enforcement notifications of violations, and copies of state site visit reports submitted to the owner or operator;

(9) Notification of the establishment of a facility mailing list whereby interested parties shall notify the department that they wish to be placed on the mailing list to receive future information and notices about this facility; and

(10) Location (mailing address) of the department, where further information can be obtained on regulation of hazardous waste burning.

g. Monitoring other operating parameters. When the monitoring systems for the operating parameters listed in paragraphs 5 though 13 of subdivision a of subsection 3 are installed and operating in conformance with vendor specifications or (for carbon monoxide, hydrocarbon, and oxygen) specifications provided by appendix XXIV of chapter 33-24-05, as appropriate, the parameters shall be continuously monitored and records shall be maintained in the operating record.

h. Revised certification of precompliance. The owner or operator may revise at any time the information and operating conditions documented under subdivisions b and c of subsection 2 in the certification of precompliance by submitting a revised certification of precompliance under procedures provided by those paragraphs.

(1) The public notice requirements of subdivision f of subsection 2 do not apply to recertifications.

(2) The owner and operator must operate the facility within the limits established for the operating parameters under subdivision c of

subsection 2 until a revised certification is submitted under this paragraph or a certification of compliance is submitted under subsection 3.

i. Certification of precompliance statement. The owner or operator must include the following signed statement with the certification of precompliance submitted to the department:

"I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information and supporting documentation. Copies of all emissions tests, dispersion modeling results and other information used to determine conformance with the requirements of subsection 2 of section 33-24-05-528 are available at the facility and can be obtained from the facility contact person listed above. Based on my inquiry of the person or persons who manages the facility, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also acknowledge that the operating limits established in this certification pursuant to paragraphs c and d of subsection 2 of section 33-24-05-528 are enforceable limits at which the facility can legally operate during interim status until: (1) A revised certification of precompliance is submitted, (2) a certification of compliance is submitted, or (3) an operating permit is issued".

3. Certification of compliance. The owner or operator shall conduct emissions testing to document compliance with the emissions standards of subsections 2 through 5 of section 33-24-05-529, sections 33-24-05-530, 33-24-05-531, and 33-24-05-532, and subparagraph d of paragraph 1 of subdivision e of subsection 1, under the procedures prescribed by this paragraph, except under extensions of time provided by subdivision g of subsection 3. Based on the compliance test, the owner or operator shall submit to the department, on or before August 21, 1991, a complete and accurate "certification of compliance" (under subdivision d of subsection 3) with those emission standards establishing limits on the operating parameters specified in subdivision a of subsection 3.

a. Limits on operating conditions. The owner or operator shall establish limits on the following parameters based on operations during the compliance test (under procedures prescribed in paragraph 4 of subdivision d of subsection 3) and include these limits with the certification of compliance. The boiler or industrial furnace must be operated in accordance with these operating limits and all applicable emissions standards of subsections 2 through 5 of section 33-24-05-529, sections 33-24-05-530 through 33-24-05-532, and subparagraph d of paragraph 1 of subdivision e of subsection 1 of section 33-24-05-528 at all times when there is hazardous waste in the unit until an operating permit is issued.

(1) Feed rate of total hazardous waste and (unless complying the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531), pumpable hazardous waste;

(2) Feed rate of each metal in the following feedstreams:

(a) Total feedstreams, except that:

[1] Facilities that comply with tier I or adjusted tier I metals feed rate screening limits may set their operating limits at the metals feed rate screening limits determined under subsection 2 or 5 of section 33-24-05-531; and

[2] Industrial furnaces that must comply with the alternative metals implementation approach under paragraph 2 of subdivision c of subsection 3 must specify limits on the concentration of each metal in collected particulate matter in lieu of feed rate limits for total feedstreams;

(b) Total hazardous waste feed (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531); and

(c) Total pumpable hazardous waste feed (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531);

(3) Total feed rate of chlorine and chloride in total feedstreams;

(4) Total feed rate of ash in total feedstreams, except that the ash feed rate for cement kilns and lightweight aggregate kilns is not limited;

(5) Carbon monoxide concentration, and where required, hydrocarbon concentration in stack gas. When complying with the carbon monoxide controls of subsection 2 of section 33-24-05-529, the carbon monoxide limit is one hundred parts per million by volume, and when complying with the hydrocarbon controls of subsection 3 of section 33-24-05-529, the hydrocarbon limit is twenty parts per million by volume. When complying with the carbon monoxide controls of subsection 3 of section 33-24-05-529, the carbon monoxide limit is established based on the compliance test;

(6) Maximum production rate of the device in appropriate units when producing normal product;

(7) Maximum combustion chamber temperature where the temperature measurement is as close to the combustion zone as possible and is upstream of any quench water injection, (unless complying with the tier I adjusted tier I metals feed rate screening limits under

subsection 2 or 5 of section 33-24-05-531):

(8) Maximum flue gas temperature entering a particulate matter control device (unless complying with tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531);

(9) For systems using wet scrubbers, including wet ionizing scrubbers (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531 and the total chlorine and chloride feed rate screening limits under subdivision a of subsection 2 or subsection 5 of section 33-24-05-532):

(a) Minimum liquid to flue gas ratio;

(b) Minimum scrubber blowdown from the system or maximum suspended solids content of scrubber water; and

(c) Minimum pH level of the scrubber water;

(10) For systems using venturi scrubbers, the minimum differential gas pressure across the venturi (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531 and the total chlorine and chloride feed rate screening limits under subdivision a of subsection 2 or subsection 5 of section 33-24-05-532);

(11) For systems using dry scrubbers (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531 and the total chlorine and chloride feed rate screening limits under subdivision a of subsection 2 or subsection 5 of section 33-24-05-532):

(a) Minimum caustic feed rate; and

(b) Maximum flue gas flow rate;

(12) For systems using wet ionizing scrubbers or electrostatic precipitators (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531 and the total chlorine and chloride feed rate screening limits under subdivision a of subsection 2 or subsection 5 of section 33-24-05-532):

(a) Minimum electrical power in kilovolt amperes (kVA) to the precipitator plates; and

(b) Maximum flue gas flow rate;

(13) For systems using fabric filters (baghouses), the minimum pressure drop (unless complying with the tier I or adjusted tier I metals feed rate screening limits under subsection 2 or 5 of section 33-24-05-531 and the total chlorine and chloride feed rate screening

limits under subdivision a of subsection 2 or subsection 5 of section 33-24-05-532).

b. Prior notice of compliance testing. At least thirty days prior to the compliance testing required by subdivision c of subsection 3, the owner or operator shall notify the department and submit the following information:

(1) General facility information including:

(a) EPA identification number;

(b) Facility name, contact person, telephone number, and address;

(c) Person responsible for conducting compliance test, including company name, address, and telephone number, and a statement of qualifications;

(d) Planned date of the compliance test;

(2) Specific information on each device to be tested including:

(a) Description of boiler or industrial furnace;

(b) A scaled plot plan showing the entire facility and location of the boiler or industrial furnace;

(c) A description of the air pollution control system;

(d) Identification of the continuous emission monitors that are installed, including:

[1] Carbon monoxide monitor;

[2] Oxygen monitor;

[3] Hydrocarbon monitor, specifying the minimum temperature of the system and, if the temperature is less than one hundred fifty degrees Celsius, an explanation of why a heated system is not used (see subdivision e of subsection 3) and a brief description of the sample gas conditioning system;

(e) Indication of whether the stack is shared with another device that will be in operation during the compliance test;

(f) Other information useful to an understanding of the system design or operation.

(3) Information on the testing planned, including a complete copy of the test protocol and quality assurance and quality control plan, and a summary description for each test providing the following information at a minimum:

(a) Purpose of the test (for example, demonstrate compliance with emissions of particulate matter); and

(b) Planned operating conditions, including levels for each pertinent parameter specified in subdivision a of subsection 3.

c. Compliance testing.

(1) General. Compliance testing must be conducted under conditions for which the owner or operator has submitted a certification of precompliance under subsection 2 and under conditions established in the notification of compliance testing required by subdivision b of subsection 3. The owner or operator may seek approval on a case-by-case basis to use compliance test data from one unit in lieu of testing a similar onsite unit. To support the request, the owner or operator must provide a comparison of the hazardous waste burned and other feedstreams, and the design, operation, and maintenance of both the tested unit and the similar unit. The department shall provide a written approval to use compliance test data in lieu of testing a similar unit if the department finds that the hazardous wastes, the devices, and the operating conditions are sufficiently similar, and the data from the other compliance test is adequate to meet the requirements of subsection 3 of section 33-24-05-528.

(2) Special requirements for industrial furnaces that recycle collected particulate matter. Owners and operators of industrial furnaces that recycle back into the furnace particulate matter from the air pollution control system must comply with one of the following procedures for testing to determine compliance with the metals standards of subsection 3 or 4 of section 33-24-05-531:

(a) The special testing requirements prescribed in "Alternative Method for Implementing Metals Controls" in appendix XXIV of chapter 33-24-05; or

(b) Stack emissions testing for a minimum of six hours each day while hazardous waste is burned during interim status. The testing must be conducted when burning normal hazardous waste for that day at normal feed rates for that day and when the air pollution control system is operated under normal conditions. During interim status, hazardous waste analysis for metals content must be sufficient for the owner or operator to determine if changes in metals content may affect the ability of the facility to meet the metals emissions standards established under subsection 3 or 4 of section 33-24-05-531. Under this option, operating limits (under subdivision a of subsection 3) must be established during compliance testing under subdivision c of subsection 3 only on the following parameters:

[1] Feed rate of total hazardous waste;

[2] Total feed rate of chlorine and chloride in total

feedstreams;

[3] Total feed rate of ash in total feedstreams, except that the ash feed rate for cement kilns and lightweight aggregate kilns is not limited;

[4] Carbon monoxide concentration, and where required, hydrocarbon concentration in stack gas;

[5] Maximum production rate of the device in appropriate units when producing normal product; or

(c) Conduct compliance testing to determine compliance with the metals standards to establish limits on the operating parameters of subdivision a of subsection 3 only after the kiln system has been conditioned to enable it to reach equilibrium with respect to metals fed into the system and metals emissions. During conditioning, hazardous waste and raw materials having the same metals content as will be fed during the compliance test must be fed at the feed rates that will be fed during the compliance test.

(3) Conduct of compliance testing.

(a) If compliance with all applicable emissions standards of sections 33-24-05-529 through 33-24-05-532 is not demonstrated simultaneously during a set of test runs, the operating conditions of additional test runs required to demonstrate compliance with remaining emissions standards must be as close as possible to the original operating conditions.

(b) Prior to obtaining test data for purposes of demonstrating compliance with the applicable emissions standards of sections 33-24-05-529 through 33-24-05-532 or establishing limits on operating parameters under this section, the facility must operate under compliance test conditions for a sufficient period to reach steady-state operations. Industrial furnaces that recycle collected particulate matter back into the furnace and that comply with subparagraph a or b of paragraph 2 of subdivision c of subsection 3, however, need not reach steady-state conditions with respect to the flow of metals in the system prior to beginning compliance testing for metals.

(c) Compliance test data on the level of an operating parameter for which a limit must be established in the certification of compliance must be obtained during emissions sampling for the pollutant or pollutants (for example, metals, particulate matter, hydrogen chloride and chlorine, organic compounds) for which the parameter must be established as specified by subdivision a of subsection 3.

d. Certification of compliance. Within ninety days of completing compliance testing, the owner or operator must certify to the department compliance with the emissions standards of subsections 2, 3, and 5 of section 33-24-

05-529, sections 33-24-05-530, 33-24-05-531, and 33-24-05-532, and subparagraph d of paragraph 1 of subdivision e of subsection 1. The certification of compliance must include the following information:

(1) General facility and testing information including:

(a) EPA/state identification number;

(b) Facility name, contact person, telephone number, and address;

(c) Person responsible for conducting compliance testing, including company name, address, and telephone number, and a statement of qualifications;

(d) Date or dates of each compliance test;

(e) Description of boiler or industrial furnace tested;

(f) Person responsible for quality assurance and quality control, title, and telephone number, and statement that procedures prescribed in the quality assurance and quality control plan submitted under paragraph 3 of subdivision b of subsection 3 of section 33-24-05-528 have been followed, or a description of any changes and an explanation of why changes were necessary.

(g) Description of any changes in the unit configuration prior to or during testing that would alter any of the information submitted in the prior notice of compliance testing under subdivision b of subsection 3, and an explanation of why the changes were necessary;

(h) Description of any changes in the planned test conditions prior to or during the testing that alter any of the information submitted in the prior notice of compliance testing under subdivision b of subsection 3, and an explanation of why the changes were necessary; and

(i) The complete report on results of emissions testing.

(2) Specific information on each test including:

(a) Purpose or purposes of test (for example, demonstrate conformance with the emissions limits for particulate matter, metals, hydrogen chloride, chlorine, and carbon monoxide).

(b) Summary of test results for each run and for each test including the following information:

[1] Date of run;

[2] Duration of run;

[3] Time-weighted average and highest hourly rolling average

carbon monoxide level for each run and for the test;

[4] Highest hourly rolling average hydrocarbon level, if hydrocarbon monitoring is required for each run and for the test;

[5] If dioxin and furan testing is required under subsection 5 of section 33-24-05-529, time-weighted average emissions for each run and for the test of chlorinated dioxin and furan emissions, and the predicted maximum annual average ground level concentration of the toxicity equivalency factor;

[6] Time-weighted average particulate matter emissions for each run and for the test;

[7] Time-weighted average hydrogen chloride and chlorine, emissions for each run and for the test;

[8] Time-weighted average emissions for the metals subject to regulation under section 33-24-05-531 for each run and for the test; and

[9] Quality assurance and quality control results.

(3) Comparison of the actual emissions during each test with the emissions limits prescribed by subsections 2, 3, and 5 of section 33-24-05-529 and sections 33-24-05-530, 33-24-05-531, and 33-24-05-532 and established for the facility in the certification of precompliance under subsection 2.

(4) Determination of operating limits based on all valid runs of the compliance test for each applicable parameter listed in subdivision a of subsection 3 using either of the following procedures:

(a) Instantaneous limits. A parameter may be measured and recorded on an instantaneous basis (for example, the value that occurs at any time) and the operating limit specified as the time-weighted average during all runs of the compliance test; or

(b) Hourly rolling average basis.

[1] The limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:

[a] A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.

[b] An hourly rolling average is the arithmetic mean of the sixty most recent one-minute average values recorded by the continuous monitoring system.

[2] The operating limit for the parameter shall be established based on compliance test data as the average over all test runs of the highest hourly rolling average value for each run.

(c) Rolling average limits for carcinogenic metals and lead. Feed rate limits for the carcinogenic metals (for example, arsenic, beryllium, cadmium, and chromium) and lead may be established either on an hourly rolling average basis as prescribed by subparagraph b of paragraph 4 of subdivision d of subsection 3 or on (up to) a twenty-four hour rolling average basis. If the owner or operator elects to use an averaging period from two to twenty-four hours:

[1] The feed rate of each metal shall be limited at any time to ten times the feed rate that would be allowed on an hourly rolling average basis;

[2] The continuous monitor shall meet the following specifications:

[a] A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each fifteen seconds, and computes and records the average value at least every sixty seconds.

[b] The rolling average for the selected averaging period is defined as the arithmetic mean of one-hour block averages for the averaging period. A one-hour block average is the arithmetic mean of the one-minute averages recorded during the sixty-minute period beginning at one-minute after the beginning of preceding clock hour; and

[3] The operating limit for the feed rate of each metal shall be established based on compliance test data as the average over all test runs of the highest hourly rolling average feed rate for each run.

(d) Feed rate limits for metals, total chloride and chlorine, and ash. Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the substance (for example, metals, chloride/chlorine, and ash) in each feedstream and the flow rate of the feedstream. To monitor the feed rate of these substances, the flow rate of each feedstream must be monitored under the continuous monitoring requirements of subparagraphs a through c of paragraph 4 of subdivision d of subsection 3.

(5) Certification of compliance statement. The following statement shall accompany the certification of compliance:

"I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information and supporting documentation. Copies of all emissions tests, dispersion modeling results and other information used to determine conformance with the requirements of subsection 3 of section 33-24-05-528 are available at the facility and can be obtained from the facility contact person listed above. Based on my inquiry of the person or persons who manages the facility, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also acknowledge that the operating conditions established in this certification pursuant to paragraph 4 of subdivision d of subsection 3 of section 33-24-05-528 are enforceable limits at which the facility can legally operate during interim status until a revised certification of compliance is submitted".

e. Special requirements for hydrocarbon monitoring systems. When an owner or operator is required to comply with the hydrocarbon controls provided by subsection 3 of section 33-24-05-529 or subparagraph d of paragraph 1 of subdivision e of subsection 1, a conditioned gas monitoring system may be used in conformance with specifications provided in appendix XXIV of chapter 33-24-05 provided that the owner or operator submits a certification of compliance without using extensions of time provided by subdivision g of subsection 3.

f. Special operating requirements for industrial furnaces that recycle collected particulate matter. Owners and operators of industrial furnaces that recycle back into the furnace particulate matter from the air pollution control system must:

(1) When complying with the requirements of subparagraph a of paragraph 2 of subdivision c of subsection 3, comply with the operating requirements prescribed in "Alternative Method to Implement the Metals Controls" in appendix XXIV of chapter 33-24-05; and

(2) When complying with the requirements of subparagraph b of paragraph 2 of subdivision c of subsection 3, comply with the operating requirements prescribed by that subparagraph.

g. Extensions of time.

(1) If the owner or operator does not submit a complete certification of compliance for all of the applicable emissions standards of sections 33-24-05-529, 33-24-05-530, 33-24-05-531, and 33-24-05-532 by August 21, 1992, an owner or operator must either:

(a) Stop burning hazardous waste and begin closure activities under subsection 12 for the hazardous waste portion of the facility; or

(b) Limit hazardous waste burning only for purposes of compliance testing (and pretesting to prepare for compliance testing) a total period of seven hundred twenty hours for the period of time beginning August 21, 1992, submit a notification to the department by August 21, 1992, stating that the facility is operating under restricted interim status and intends to resume burning hazardous waste, and submit a complete certification of compliance by August 23, 1993; or

(c) Obtain a case-by-case extension of time under paragraph 2 of subdivision q of subsection 3.

(2) The owner or operator may request a case-by-case extension of time to extend any time limit provided by subsection 3 if compliance with the time limit is not practicable for reasons beyond the control of the owner or operator.

(a) In granting an extension, the department may apply conditions as the facts warrant to ensure timely compliance with the requirements and that the facility operates in a manner that does not pose a hazard to human health and the environment;

(b) When an owner and operator request an extension of time to enable them to obtain a Resource Conservation and Recovery Act operating permit because the facility cannot meet the hydrocarbon limit of subsection 3 of section 33-24-05-529:

[1] The department shall, in considering whether to grant the extension:

[a] Determine whether the owner and operator have submitted in a timely manner a complete part B permit application that includes information required under subdivision ff of subsection 2 of section 33-24-06-17; and

[b] Consider whether the owner and operator have made a good faith effort to certify compliance with all other emission controls, including the controls on dioxins and furans of subsection 5 of section 33-24-05-529 and the controls on particulate matter, metals, and hydrogen chloride and chlorine.

[2] If an extension is granted, the department shall, as a condition of the extension, require the facility to operate under flue gas concentration limits on carbon monoxide and hydrocarbon that, based on available information, including information in the part B permit application, are baseline carbon monoxide and hydrocarbon levels as defined by subdivision a of

subsection 6 of section 33-24-05-529.

h. Revised certification of compliance. The owner or operator may submit at any time a revised certification of compliance (recertification of compliance) under the following procedures:

(1) Prior to submittal of a revised certification of compliance, hazardous waste may not be burned for more than a total of seven hundred twenty hours under operating conditions that exceed those established under a current certification of compliance, and such burning may be conducted only for purposes of determining whether the facility can operate under revised conditions and continue to meet the applicable emissions standards of sections 33-24-05-529 through 33-24-05-532;

(2) At least thirty days prior to first burning hazardous waste under operating conditions that exceed those established under a current certification of compliance, the owner or operator shall notify the department and submit the following information:

(a) EPA identification number, and facility name, contact person, telephone number, and address;

(b) Operating conditions that the owner or operator is seeking to revise and description of the changes in facility design or operation that prompted the need to seek to revise the operating conditions;

(c) A determination that when operating under the revised operating conditions, the applicable emissions standards of sections 33-24-05-529 through 33-24-05-532 are not likely to be exceeded. To document this determination, the owner or operator shall submit the applicable information required under subdivision b of subsection 2; and

(d) Complete emissions testing protocol for any pretesting and for a new compliance test to determine compliance with the applicable emissions standards of sections 33-24-05-529, 33-24-05-530, 33-24-05-531, and 33-24-05-532 when operating under revised operating conditions. The protocol shall include a schedule of pretesting and compliance testing. If the owner or operator revises the scheduled date for the compliance test, the owner or operator shall notify the department in writing at least thirty days prior to the revised date of the compliance test;

(3) Conduct a compliance test under the revised operating conditions and the protocol submitted to the department to determine compliance with the applicable emissions standards of sections 33-24-05-529, 33-24-05-530, 33-24-05-531, and 33-24-05-532; and

(4) Submit a revised certification of compliance under subdivision d of subsection 3.

4. Periodic recertifications. The owner or operator must conduct compliance testing and submit to the department a recertification of compliance under provisions of subsection 3 within three years from submitting the previous certification or recertification. If the owner or operator seeks to recertify compliance under new operating conditions, the owner or operator must comply with the requirements of subdivision h of subsection 3.

5. Noncompliance with certification schedule. If the owner or operator does not comply with the interim status compliance schedule provided by subsections 2 through 4, hazardous waste burning must terminate on the date that the deadline is missed, closure activities must begin under subsection 12, and hazardous waste burning may not resume except under an operating permit issued under subsection 4 of section 33-24-06-19. For purposes of compliance with the closure provisions of subsection 12 and subsection 5 of section 33-24-06-16 the boiler or industrial furnace has received "the known final volume of hazardous waste" on the date that the deadline is missed.

6. Startup and shutdown. Hazardous waste (except waste fed solely as an ingredient under the tier I (or adjusted tier I) feed rate screening limits for metals and chloride/chlorine) must not be fed into the device during startup and shutdown of the boiler or industrial furnace, unless the device is operating within the conditions of operation specified in the certification of compliance.

7. Automatic waste feed cutoff. During the compliance test required by subdivision c of subsection 3, and upon certification of compliance under subsection 3, a boiler or industrial furnace must be operated with a functioning system that automatically cuts off the hazardous waste feed when the applicable operating conditions specified in paragraphs 1 and 5 through 13 of subdivision a of subsection 3 deviate from those established in the certification of compliance. In addition:

   a. To minimize emissions of organic compounds, the minimum combustion chamber temperature (or the indicator of combustion chamber temperature) that occurred during the compliance test must be maintained while hazardous waste or hazardous waste residues remain in the combustion chamber, with the minimum temperature during the compliance test defined as either:

      (1) If compliance with the combustion chamber temperature limit is based on a hourly rolling average, the minimum temperature during the compliance test is considered to be the average over all runs of the lowest hourly rolling average for each run; or

      (2) If compliance with the combustion chamber temperature limit is based on an instantaneous temperature measurement, the minimum temperature during the compliance test is considered to be the time-weighted average temperature during all runs of the test; and

   b. Operating parameters limited by the certification of compliance must continue to be monitored during the cutoff, and the hazardous waste feed shall not be restarted until the levels of those parameters comply with the limits established in the certification of compliance.

8. Fugitive emissions. Fugitive emissions must be controlled by:

a. Keeping the combustion zone totally sealed against fugitive emissions; or

b. Maintaining the combustion zone pressure lower than atmospheric pressure; or

c. An alternate means of control that the owner or operator can demonstrate provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure. Support for such demonstration shall be included in the operating record.

9. Changes. A boiler or industrial furnace must cease burning hazardous waste when changes in combustion properties, or feed rates of the hazardous waste, other fuels, or industrial furnace feedstocks, or changes in the boiler or industrial furnace design or operating conditions deviate from the limits specified in the certification of compliance.

10. Monitoring and inspections.

a. The owner or operator must monitor and record the following, at a minimum, while burning hazardous waste:

(1) Feed rates and composition of hazardous waste, other fuels, and industrial furnace feedstocks, and feed rates of ash, metals, and total chloride and chlorine as necessary to ensure conformance with the certification of precompliance or certification of compliance;

(2) Carbon monoxide, oxygen, and if applicable, hydrocarbons , on a continuous basis at a common point in the boiler or industrial furnace downstream of the combustion zone and prior to release of stack gases to the atmosphere in accordance with the operating limits specified in the certification of compliance. Carbon monoxide, hydrocarbon, and oxygen monitors must be installed, operated, and maintained in accordance with methods specified in appendix XXIV of chapter 33-24-05.

(3) Upon the request of the department, sampling and analysis of the hazardous waste (and other fuels and industrial furnace feedstocks as appropriate) and the stack gas emissions must be conducted to verify that the operating conditions established in the certification of precompliance or certification of compliance achieve the applicable standards of sections 33-24-05-529 through 33-24-05-532.

b. The boiler or industrial furnace and associated equipment (pumps, valves, pipes, fuel storage tanks, et cetera) must be subjected to thorough visual inspection when they contain hazardous waste, at least daily for leaks, spills, fugitive emissions, and signs of tampering.

c. The automatic hazardous waste feed cutoff system and associated alarms must be tested at least once every seven days when hazardous waste is burned to verify operability, unless the owner or operator can

demonstrate that weekly inspections will unduly restrict or upset operations and that less frequent inspections will be adequate. Support for such demonstration shall be included in the operating record. At a minimum, operational testing must be conducted at least once every thirty days.

d. These monitoring and inspection data must be recorded and the records must be placed in the operating log.

11. Recordkeeping. The owner or operator must keep in the operating record of the facility all information and data required by this section until closure of the boiler or industrial furnace unit.

12. Closure. At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including, but not limited to, ash, scrubber waters, and scrubber sludges) from the boiler or industrial furnace and must comply with subsection 5 of section 33-24-06-16.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-10

33-24-05-529. ~~[Reserved]~~ Standards to control organic emissions.

1. Destruction and removal efficiency standard.

a. General. Except as provided in subdivision c of subsection a, a boiler or industrial furnace burning hazardous waste must achieve a destruction and removal efficiency (destruction and removal efficiency) of 99.99 percent for all organic hazardous constituents in the waste feed. To demonstrate conformance with this requirement, 99.99 percent destruction and removal efficiency must be demonstrated during a trial burn for each principle organic hazardous constituent designated (under subdivision b of subsection 1) in its permit for each waste feed. Destruction and removal efficiency is determined for each principle organic hazardous constituent from the following equation:

$$\text{destruction and removal efficiency} = \left[1 - \frac{W_{out}}{W_{in}}\right] \times 100$$

where:

W_{in} = Mass feed rate of one principle organic hazardous constituent in the hazardous waste fired to the boiler or industrial furnace; and

W_{out} = Mass emission rate of the same principle organic hazardous constituent present in stack gas prior to release to the atmosphere.

b. Designation of principle organic hazardous constituents. Principle organic hazardous constituents are those compounds for which compliance with the destruction and removal efficiency requirements shall be demonstrated in a trial burn in conformance with procedures prescribed in subsection 4 of section 33-24-06-19. One or more principle organic

hazardous constituents shall be designated by the department for each waste feed to be burned. principle organic hazardous constituents shall be designated based on the degree of difficulty of destruction of the organic constituents in the waste and on their concentrations or mass in the waste feed considering the results of waste analyses submitted with part B of the permit application. Principle organic hazardous constituents are most likely to be selected from among those compounds listed in appendix V of chapter 33-24-02 that are also present in the normal waste feed. However, if the applicant demonstrates to the department's satisfaction that a compound not listed in appendix XXIII of chapter 33-24-05 or not present in the normal waste feed is a suitable indicator of compliance with the destruction and removal efficiency requirements, that compound may be designated as a principle organic hazardous constituent. Such principle organic hazardous constituents need not be toxic or organic compounds.

c. Dioxin-listed waste. A boiler or industrial furnace burning hazardous waste containing (or derived from) hazardous waste number F020, F021, F022, F023, F026, or F027 must achieve a destruction and removal efficiency (destruction and removal efficiency) of 99.9999 percent for each principle organic hazardous constituent designated (under subdivision b of subsection 1) in its permit. This performance must be demonstrated on principle organic hazardous constituents that are more difficult to burn than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. Destruction and removal efficiency is determined for each principle organic hazardous constituent from the equation in subdivision a of subsection 1. In addition, the owner or operator of the boiler or industrial furnace must notify the department of intent to burn hazardous waste number F020, F021, F022, F023, F026, or F027.

d. Automatic waiver of destruction and removal efficiency trial burn. Owners and operators of boilers operated under the special operating requirements provided by section 33-24-05-535 are considered to be in compliance with the destruction and removal efficiency standard of subdivision a of subsection 1 and are exempt from the destruction and removal efficiency trial burn.

e. Low risk waste. Owners and operators of boilers or industrial furnaces that burn hazardous waste in compliance with the requirements of subsection 1 of section 33-24-05-534 are considered to be in compliance with the destruction and removal efficiency standard of subdivision a of subsection 1 and are exempt from the destruction and removal efficiency trial burn.

2. Carbon monoxide standard.

a. Except as provided in subsection 3, the stack gas concentration of carbon monoxide from a boiler or industrial furnace burning hazardous waste cannot exceed one hundred parts per million by volume on an hourly rolling average basis (for example, over any sixty-minute period), continuously corrected to seven percent oxygen, dry gas basis.

b. Carbon monoxide and oxygen shall be continuously monitored in conformance with "Performance Specifications for Continuous Emission Monitoring of

Carbon Monoxide and Oxygen for Hazardous Waste Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste" in appendix XXIV of chapter 33-24-05.

c. Compliance with the one hundred parts per million by volume carbon monoxide limit must be demonstrated during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). To demonstrate compliance, the highest hourly rolling average carbon monoxide level during any valid run of the trial burn or compliance test must not exceed one hundred parts per million by volume.

3. Alternative carbon monoxide standard.

a. The stack gas concentration of carbon monoxide from a boiler or industrial furnace burning hazardous waste may exceed the one hundred parts per million by volume limit provided that stack gas concentrations of hydrocarbons do not exceed twenty parts per million by volume, except as provided by subsection 6 for certain industrial furnaces.

b. Hydrocarbon limits must be established under this section on an hourly rolling average basis (for example, over any sixty-minute period), reported as propane, and continuously corrected to seven percent oxygen, dry gas basis.

c. Hydrocarbon shall be continuously monitored in conformance with "Performance Specifications for Continuous Emission Monitoring of Hydrocarbons for Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste" in appendix XXIV of chapter 33-24-05. Carbon monoxide and oxygen shall be continuously monitored in conformance with subdivision b of subsection 2.

d. The alternative carbon monoxide standard is established based on carbon monoxide data during the trial burn (for a new facility) and the compliance test (for an interim status facility). The alternative carbon monoxide standard is the average over all valid runs of the highest hourly average carbon monoxide level for each run. The carbon monoxide limit is implemented on an hourly rolling average basis, and continuously corrected to seven percent oxygen, dry gas basis.

4. Special requirements for furnaces. Owners and operators of industrial furnaces (for example, kilns, cupolas) that feed hazardous waste for a purpose other than solely as an ingredient (see paragraph 2 of subdivision e of subsection 1 of section 33-24-05-528) at any location other than the end where products are normally discharged and where fuels are normally fired must comply with the hydrocarbon limits provided by subsection 3 or 6 irrespective of whether stack gas carbon monoxide concentrations meet the one hundred parts per million by volume limit of subsection 2.

5. Controls for dioxins and furans. Owners and operators of boilers and industrial furnaces that are equipped with a dry particulate matter control device that operates within the temperature range of four hundred fifty degrees to seven hundred fifty degrees Fahrenheit [232.2 to 398.9 degrees Celsius], and industrial furnaces operating under an alternative hydrocarbon

limit established under subsection 6 must conduct a site-specific risk assessment as follows to demonstrate that emissions of chlorinated dibenzo-p-dioxins and dibenzofurans do not result in an increased lifetime cancer risk to the hypothetical maximum exposed individual exceeding one in one hundred thousand:

a. During the trial burn (for new facilities or an interim status facility applying for a permit) or compliance test (for interim status facilities), determine emission rates of the tetra-octa congeners of chlorinated dibenzo-p-dioxins and dibenzofurans (CDDs/CDFs) using method 23, "Determination of Polychlorinated Dibenzo-p-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) from Stationary Sources", in appendix XXIV of chapter 33-24-05;

b. Estimate the 2,3,7,8-TCDD toxicity equivalence of the tetra-octa chlorinated dibenzo-p-dioxins and dibensofurans congeners using "Procedures for Estimating the Toxicity Equivalence of Chlorinated Dibenzo-p-Dioxin and Dibenzofuran Congeners" in appendix XXIV of chapter 33-24-05. Multiply the emission rates of chlorinated dibenzo-p-dioxins and dibensofurans congeners with a toxicity equivalence greater than zero (see the procedure) by the calculated toxicity equivalence factor to estimate the equivalent emission rate of 2,3,7,8-TCDD;

c. Conduct dispersion modeling using methods recommended in guideline on air quality models (revised) or the "Hazardous Waste Combustion Air Quality Screening Procedure", which are provided in appendices XXV or XXIV, respectively, or "EPA SCREEN Screening Procedure" as described in "Screening Procedures for Estimating Air Quality Impact of Stationary Sources" as incorporated by reference in section 33-24-01-05 to predict the maximum annual average offsite ground level concentration of 2,3,7,8-TCDD equivalents determined under subdivision b of subsection 5. The maximum annual average onsite concentration must be used when a person resides onsite; and

d. The ratio of the predicted maximum annual average ground level concentration of 2,3,7,8-TCDD equivalents to the risk-specific dose for 2,3,7,8-TCDD provided in appendix XX of chapter 33-24-05 (2.2×10^{-7}) shall not exceed 1.0.

6. Alternative hydrocarbon limit for furnaces with organic matter in raw material. For industrial furnaces that cannot meet the twenty parts per million by volume hydrocarbon limit because of organic matter in normal raw material, the department may establish an alternative hydrocarbon limit on a case-by-case basis (under a part B permit proceeding) at a level that ensures that flue gas hydrocarbon (and carbon monoxide) concentrations when burning hazardous waste are not greater than when not burning hazardous waste (the baseline hydrocarbon level) provided that the owner or operator complies with the following requirements. However, cement kilns equipped with a bypass duct meeting the requirements of subsection 7, are not eligible for an alternative hydrocarbon limit.

a. The owner or operator must demonstrate that the facility is designed and operated to minimize hydrocarbon emissions from fuels and raw materials when the baseline hydrocarbon (and carbon monoxide) level is determined.

The baseline hydrocarbon (and carbon monoxide) level is defined as the average over all valid test runs of the highest hourly rolling average value for each run when the facility does not burn hazardous waste, and produces normal products under normal operating conditions feeding normal feedstocks and fuels. More than one baseline level may be determined if the facility operates under different modes that may generate significantly different hydrocarbon (and carbon monoxide) levels;

b. The owner or operator must develop an approach to monitor over time changes in the operation of the facility that could reduce the baseline hydrocarbon level;

c. The owner or operator must conduct emissions testing during the trial burn to:

(1) Determine the baseline hydrocarbon (and carbon monoxide) level;

(2) Demonstrate that, when hazardous waste is burned, hydrocarbon (and carbon monoxide) levels do not exceed the baseline level; and

(3) Identify the types and concentrations of organic compounds listed in appendix V of chapter 33-24-02, that are emitted and conduct dispersion modeling to predict the maximum annual average ground level concentration of each organic compound. Onsite ground level concentrations must be considered for this evaluation if a person resides on site.

(a) Sampling and analysis of organic emissions shall be conducted using procedures prescribed by the department.

(b) Dispersion modeling shall be conducted according to procedures provided by subdivision b of subsection 5; and

(4) Demonstrate that maximum annual average ground level concentrations of the organic compounds identified in paragraph 3 do not exceed the following levels:

(a) For the noncarcinogenic compounds listed in appendix XIX of chapter 33-24-05, the levels established in appendix XIX of chapter 33-24-05;

(b) For the carcinogenic compounds listed in appendix XX of chapter 33-24-05, the sum for all compounds of the ratios of the actual ground level concentration to the level established in appendix XX of chapter 33-24-05 cannot exceed 1.0. To estimate the health risk from chlorinated dibenzo-p-dioxins and dibenzofuran congeners, use the procedures prescribed by subdivision c of subsection 5 to estimate the 2,3,7,8-TCDD toxicity equivalence of the congeners.

(c) For compounds not listed in appendix XIX or XX of chapter 33-24-05, 0.1 micrograms per cubic meter.

d. All hydrocarbon levels specified in this subsection are to be monitored

and reported as specified in subdivisions a and b of subsection 3.

7. Monitoring carbon monoxide and hydrocarbon in the bypass duct of a cement kiln. Cement kilns may comply with the carbon monoxide and hydrocarbon limits provided by subsections 2 through 4 by monitoring in the bypass duct provided that:

   a. Hazardous waste is fired only into the kiln and not at any location downstream from the kiln exit relative to the direction of gas flow; and

   b. The bypass duct diverts a minimum of ten percent of kiln off-gas into the duct.

8. Use of emissions test data to demonstrate compliance and establish operating limits. Compliance with the requirements must be demonstrated simultaneously by emissions testing or during separate runs under identical operating conditions. Further, data to demonstrate compliance with the carbon monoxide and hydrocarbon limits or to establish alternative carbon monoxide or hydrocarbon limits under this section must be obtained during the time that destruction and removal efficiency testing, and where applicable, CDD/CDF testing under subsection 5 and comprehensive organic emissions testing under subsection 6 is conducted.

9. Enforcement. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under section 33-24-05-527) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements may be "information" justifying modification or revocation and reissuance of a permit under section 33-24-06-12.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-10

33-24-05-530. ~~[Reserved]~~ Standards to control particulate matter.

1. A boiler or industrial furnace burning hazardous waste may not emit particulate matter in excess of one hundred eighty milligrams per dry standard cubic meter [0.08 grains per dry standard cubic foot] after correction to a stack gas concentration of seven percent oxygen, using procedures prescribed in 40 CFR part 60, appendix A, methods 1 through 5, and appendix XXIV of chapter 33-24-05.

2. An owner or operator meeting the requirements of subsection 2 of section 33-24-05-534 for the low risk waste exemption is exempt from the particulate matter standard.

3. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under section 33-24-05-527) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements may be "information" justifying modification or revocation and reissuance of a permit under section 33-24-06-12.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20-3-03, 23-20.3-04, 23-20.3-05, 23-20.3-09

33-24-05-531. ~~[Reserved]~~ Standards to control metals emissions.

1. General. The owner or operator must comply with the metals standards provided by subsections 2 through 6 for each metal listed in subsection 2 that is present in the hazardous waste at detectable levels using analytical procedures specified in test methods for evaluating solid waste, physical/chemical methods (SW-846), incorporated by reference in section 33-24-01-05.

2. Tier I feed rate screening limits. Feed rate screening limits for metals are specified in appendix XVI as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. Criteria for facilities that are not eligible to comply with the screening limits are provided in subdivision g of subsection 2.

   a. Noncarcinogenic metals. The feed rates of antimony, barium, lead, mercury, thallium, and silver in all feedstreams, including hazardous waste, fuels, and industrial furnace feedstocks shall not exceed the screening limits specified in appendix I.

      (1) The feed rate screening limits for antimony, barium, mercury, thallium, and silver are based on either:

         (a) An hourly rolling average as defined in subparagraph b of paragraph 1 of subdivision f of subsection 5 of sec 33-24-05-527; or

         (b) An instantaneous limit not to be exceeded at any time.

      (2) The feed rate screening limit for lead is based on one of the following:

         (a) An hourly rolling average as defined in subparagraph b of paragraph 1 of subdivision f of subsection 5 of section 33-24-05-527;

         (b) An averaging period of two to twenty-four hours as defined in paragraph 2 of subdivision f of subsection 5 of section 33-24-05-527 with an instantaneous feed rate limit not to exceed ten times the feed rate that would be allowed on an hourly rolling average basis; or

         (c) An instantaneous limit not to be exceeded at any time.

   b. Carcinogenic metals.

      (1) The feed rates of arsenic, cadmium, beryllium, and chromium in all feedstreams, including hazardous waste, fuels, and industrial furnace feedstocks shall not exceed values derived from the

screening limits specified in appendix XVI of chapter 33-24-05. The feed rate of each of these metals is limited to a level such that the sum of the ratios of the actual feed rate to the feed rate screening limit specified in appendix XVI of chapter 33-24-05 shall not exceed 1.0, as provided by the following equation:

$$\sum_{i=1}^{n} \frac{AFR_{(i)}}{FRSL_{(i)}} \leq 1.0$$

where:

n = number of carcinogenic metals

AFR = actual feed rate to the device for metal "i"

FRSL = feed rate screening limit provided by appendix XVI of chapter 33-24-05 for metal "i".

(2) The feed rate screening limits for the carcinogenic metals are based on either:

(a) An hourly rolling average; or

(b) An averaging period of two to twenty-four hours as defined in paragraph 2 of subdivision f of subsection 5 of section 33-24-05-527 with an instantaneous feed rate limit not to exceed ten times the feed rate that would be allowed on an hourly rolling average basis.

c. Terrain-adjusted effective stack height (TESH).

(1) The terrain-adjusted effective stack height is determined according to the following equation:

TESH=Ha+H1-Tr

where:

Ha = Actual physical stack height

H1 = Plume rise as determined from appendix XXI of chapter 33-24-05 as a function of stack flow rate and stack gas exhaust temperature.

Tr = Terrain rise within five kilometers of the stack.

(2) The stack height (Ha) may not exceed good engineering practice as specified in 40 CFR 51.100(ii).

(3) If the terrain-adjusted effective stack height for a particular facility is not listed in the table in the appendices, the nearest lower terrain-adjusted effective stack height listed in the table shall be used. If the terrain-adjusted effective stack height is

four meters or less, a value of four meters shall be used.

d. Terrain type. The screening limits are a function of whether the facility is located in noncomplex or complex terrain. A device located where any part of the surrounding terrain within five kilometers of the stack equals or exceeds the elevation of the physical stack height (Ha) is considered to be in complex terrain and the screening limits for complex terrain apply. Terrain measurements are to be made from United States geological survey 7.5-minute topographic maps of the area surrounding the facility.

e. Land use. The screening limits are a function of whether the facility is located in an area where the land use is urban or rural. To determine whether land use in the vicinity of the facility is urban or rural, procedures provided in appendices XXIV or XXV of chapter 33-24-05 shall be used.

f. Multiple stacks. Owners and operators of facilities with more than one onsite stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls of metals emissions under a hazardous waste operating permit or interim status controls must comply with the screening limits for all such units assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics. The worst-case stack is determined from the following equation as applied to each stack:

$K = HVT$

where:

K = a parameter accounting for relative influence of stack height and plume rise;

H = physical stack height (meters);

V = stack gas flow rate (m^3/second); and

T = exhaust temperature (°Kelvin).

The stack with the lowest value of K is the worst-case stack.

g. Criteria for facilities not eligible for screening limits. If any criteria below are met, the tier I (and tier II) screening limits do not apply. Owners and operators of such facilities must comply with the tier III standards provided by subsection 4.

(1) The device is located in a narrow valley less than one kilometer wide;

(2) The device has a stack taller than twenty meters and is located such that the terrain rises to the physical height within one kilometer of the facility;

(3) The device has a stack taller than twenty meters and is located

within five kilometers of a shoreline of a large body of water such as an ocean or large lake;

(4) The physical stack height of any stack is less than 2.5 times the height of any building within five building heights or five projected building widths of the stack and the distance from the stack to the closest boundary is within five building heights or five projected building widths of the associated building; or

(5) The department determines that standards based on site-specific dispersion modeling are required.

h. Implementation. The feed rate of metals in each feedstream must be monitored to ensure that the feed rate screening limits are not exceeded.

3. Tier II emission rate screening limits. Emission rate screening limits are specified in appendix XVI of chapter 33-24-05 as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. Criteria for facilities that are not eligible to comply with the screening limits are provided in subdivision g of subsection 2.

a. Noncarcinogenic metals. The emission rates of antimony, barium, lead, mercury, thallium, and silver shall not exceed the screening limits specified in appendix XVI of chapter 33-24-05.

b. Carcinogenic metals. The emission rates of arsenic, cadmium, beryllium, and chromium shall not exceed values derived from the screening limits specified in appendix XVI of chapter 33-24-05. The emission rate of each of these metals is limited to a level such that the sum of the ratios of the actual emission rate to the emission rate screening limit specified in appendix XVI of chapter 33-24-05 shall not exceed 1.0, as provided by the following equation:

$$\sum_{i=1}^{n} \frac{AER_{(i)}}{ERSL_{(i)}} \leq 1.0$$

where:

n = number of carcinogenic metals

AER = actual emission rate for metal "i"

ERSL = emission rate screening limit provided by appendix XVI for metal "i".

c. Implementation. The emission rate limits must be implemented by limiting feed rates of the individual metals to levels during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate averaging periods are the same as provided by paragraphs 1 and 2 of subdivision a of subsection 2 and paragraph 2 of subdivision b of subsection 2. The feed rate of metals in each feedstream must be monitored to ensure that the feed rate limits for the feedstreams

specified under section 33-24-05-527 or section 33-24-05-528 are not exceeded.

d. Definitions and limitations. The definitions and limitations provided by subsection 2 for the following terms also apply to the tier II emission rate screening limits provided by subsection 3: terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and criteria for facilities not eligible to use the screening limits.

e. Multiple stacks.

(1) Owners and operators of facilities with more than one onsite stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on metals emissions under a hazardous waste operating permit or interim status controls must comply with the emissions screening limits for any such stacks assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics.

(2) The worst-case stack is determined by procedures provided in subdivision f of subsection 2.

(3) For each metal, the total emissions of the metal from those stacks shall not exceed the screening limit for the worst-case stack.

4. Tier III site-specific risk assessment.

a. General. Conformance with the tier III metals controls must be demonstrated by emissions testing to determine the emission rate for each metal, air dispersion modeling to predict the maximum annual average offsite ground level concentration for each metal, and a demonstration that acceptable ambient levels are not exceeded.

b. Acceptable ambient levels. Appendices XIX and XX of chapter 33-24-05 list the acceptable ambient levels for purposes of this rule. Reference air concentrations are listed for the noncarcinogenic metals and 10^{-5} risk-specific doses are listed for the carcinogenic metals. The risk-specific dose for a metal is the acceptable ambient level for that metal provided that only one of the four carcinogenic metals is emitted. If more than one carcinogenic metal is emitted, the acceptable ambient level for the carcinogenic metals is a fraction of the risk-specific dose as described in subdivision c of subsection 4.

c. Carcinogenic metals. For the carcinogenic metals, arsenic, cadmium, beryllium, and chromium, the sum of the ratios of the predicted maximum annual average offsite ground level concentrations (except that onsite concentrations must be considered if a person resides on site) to the risk-specific dose for all carcinogenic metals emitted shall not exceed 1.0 as determined by the following equation:

$$\sum_{i=1}^{n} \frac{\text{Predicted Ambient Concentration}_{(i)}}{\text{Risk-Specific Dose}_{(i)}} \leq 1.0$$

where:

n = number of carcinogenic metals

d. Noncarcinogenic metals. For the noncarcinogenic metals, the predicted maximum annual average offsite ground level concentration for each metal shall not exceed the reference air concentration.

e. Multiple stacks. Owners and operators of facilities with more than one onsite stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on metals emissions under a hazardous waste operating permit or interim status controls must conduct emissions testing and dispersion modeling to demonstrate that the aggregate emissions from all such onsite stacks do not result in an exceedance of the acceptable ambient levels.

f. Implementation. Under tier III, the metals controls must be implemented by limiting feed rates of the individual metals to levels during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate averaging periods are the same as provided by paragraphs 1 and 2 of subdivision a of subsection 2 and paragraph 2 of subdivision b of subsection 2. The feed rate of metals in each feedstream must be monitored to ensure that the feed rate limits for the feedstreams specified under section 33-24-05-527 or section 33-24-05-528 are not exceeded.

5. Adjusted tier I feed rate screening limits. The owner or operator may adjust the feed rate screening limits provided by appendix XVI of chapter 33-24-05 to account for site-specific dispersion modeling. Under this approach, the adjusted feed rate screening limit for a metal is determined by back-calculating from the acceptable ambient level provided by appendices XIX and XX of chapter 33-24-05 using dispersion modeling to determine the maximum allowable emission rate. This emission rate becomes the adjusted tier I feed rate screening limit. The feed rate screening limits for carcinogenic metals are implemented as prescribed in subdivision b of subsection 2.

6. Alternative implementation approaches.

a. The department may approve on a case-by-case basis approaches to implement the tier II or tier III metals emission limits provided by subsection 3 or 4 alternative to monitoring the feed rate of metals in each feedstream.

b. The emission limits provided by subsection 4 must be determined as follows:

(1) For each noncarcinogenic metal, by back-calculating from the reference air concentration provided in appendix XIX of chapter 33-24-05 to determine the allowable emission rate for each metal using the dilution factor for the maximum annual average ground level concentration predicted by dispersion modeling in conformance with subsection 8; and

(2) For each carcinogenic metal by:

(a) Back-calculating from the risk-specific dose provided in appendix XX of chapter 33-24-05 to determine the allowable emission rate for each metal if that metal were the only carcinogenic metal emitted using the dilution factor for the maximum annual average ground level concentration predicted by dispersion modeling in conformance with subsection 8; and

(b) If more than one carcinogenic metal is emitted, selecting an emission limit for each carcinogenic metal not to exceed the emission rate determined by subparagraph a such that the sum for all carcinogenic metals of the ratios of the selected emission limit to the emission rate determined by that paragraph does not exceed 1.0.

7. Emission testing.

a. General. Emission testing for metals shall be conducted using the multiple metals train as described in appendix XXIV of chapter 33-24-05.

b. Hexavalent chromium. Emissions of chromium are assumed to be hexavalent chromium unless the owner or operator conducts emissions testing to determine hexavalent chromium emissions using procedures prescribed in appendix XXIV of chapter 33-24-05.

8. Dispersion modeling. Dispersion modeling required under this section shall be conducted according to methods recommended in appendix XXV of chapter 33-24-05, the "Hazardous Waste Combustion Air Quality Screening Procedure" described in appendix XXIV of chapter 33-24-05, or "EPA SCREEN Screening Procedure" as described in Screening Procedures for Estimating Air Quality Impact of Stationary Sources (the latter document is incorporated by reference, see section 33-24-01-05) to predict the maximum annual average offsite ground level concentration. However, onsite concentrations must be considered when a person resides on site.

9. Enforcement. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under section 33-24-05-527) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements may be "information" justifying modification or revocation and reissuance of a permit under section 33-24-06-12.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-09

33-24-05-532. ~~[Reserved]~~ Standards to control hydrogen chloride (HCl) and chlorine gas (Cl_2) emissions.

1. General. The owner or operator must comply with the hydrogen chloride and chlorine controls provided by subsections 2, 3, or 5.

2. Screening limits.

a. Tier I feed rate screening limits. Feed rate screening limits are specified for total chlorine in appendix XVII as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. The feed rate of total chlorine and chloride, both organic and inorganic, in all feedstreams, including hazardous waste, fuels, and industrial furnace feedstocks, shall not exceed the levels specified.

b. Tier II emission rate screening limits. Emission rate screening limits for hydrogen chloride and chlorine are specified in appendix XVIII as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. The stack emission rates of hydrogen chloride and chlorine shall not exceed the levels specified.

c. Definitions and limitations. The definitions and limitations provided by subsection 2 of section 33-24-05-531 for the following terms also apply to the screening limits provided by this subsection: terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and criteria for facilities not eligible to use the screening limits.

d. Multiple stacks. Owners and operators of facilities with more than one onsite stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on hydrogen chloride or chlorine, emissions under a hazardous waste operating permit or interim status controls must comply with the tier I and tier II screening limits for those stacks assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics.

(1) The worst-case stack is determined by procedures provided in subdivision f of subsection 2 of section 33-24-05-531.

(2) Under tier I, the total feed rate of chlorine and chloride to all subject devices shall not exceed the screening limit for the worst-case stack.

(3) Under tier II, the total emissions of hydrogen chloride and chlorine from all subject stacks shall not exceed the screening limit for the worst-case stack.

3. Tier III site-specific risk assessments.

a. General. Conformance with the tier III controls must be demonstrated by emissions testing to determine the emission rate for hydrogen chloride and chlorine, air dispersion modeling to predict the maximum annual average offsite ground level concentration for each compound, and a demonstration that acceptable ambient levels are not exceeded.

b. Acceptable ambient levels. Appendix XIX of chapter 33-24-05 lists the reference air concentrations for hydrogen chloride (7 micrograms per cubic meter) and chlorine (0.4 micrograms per cubic meter).

c. Multiple stacks. Owners and operators of facilities with more than one onsite stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on hydrogen chloride or chorine, emissions under a hazardous waste operating permit or interim status controls must conduct emissions testing and dispersion modeling to demonstrate that the aggregate emissions from all such onsite stacks do not result in an exceedance of the acceptable ambient levels for hydrogen chloride and chlorine.

4. Averaging periods. The hydrogen chloride and chlorine controls are implemented by limiting the feed rate of total chlorine and chloride in all feedstreams, including hazardous waste, fuels, and industrial furnace feedstocks. Under tier I, the feed rate of total chloride and chlorine is limited to the tier I screening limits. Under tier II and tier III, the feed rate of total chloride and chlorine is limited to the feed rates during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate limits are based on either:

   a. An hourly rolling average as defined in subdivision f of subsection 5 of section 33-24-05-527; or

   b. An instantaneous basis not to be exceeded at any time.

5. Adjusted tier I feed rate screening limits. The owner or operator may adjust the feed rate screening limit provided by appendix XVII of chapter 33-24-05 to account for site-specific dispersion modeling. Under this approach, the adjusted feed rate screening limit is determined by back-calculating from the acceptable ambient level for chlorine provided by appendix XIX of chapter 33-24-05 using dispersion modeling to determine the maximum allowable emission rate. This emission rate becomes the adjusted tier I feed rate screening limit.

6. Emissions testing. Emissions testing for hydrogen chloride and chlorine shall be conducted using the procedures described in appendix XXIV of chapter 33-24-05.

7. Dispersion modeling. Dispersion modeling shall be conducted according to the provisions of subsection 8 of section 33-24-05-531.

8. Enforcement. For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under section 33-24-05-527) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements may be "information" justifying modification or revocation and reissuance of a permit under section 33-24-06-12.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-09

33-24-05-533. ~~[Reserved]~~ Small quantity onsite burner exemption.

1. Exempt quantities. Owners and operators of facilities that burn hazardous waste in an onsite boiler or industrial furnace are exempt from the requirements of sections 33-24-05-525 through 33-24-05-549 provided that:

   a. The quantity of hazardous waste burned in a device for a calendar month does not exceed the limits provided in the following table based on the terrain-adjusted effective stack height as defined in subdivision c of subsection 2 of section 33-24-05-531:

Exempt Quantities for Small Quantity Burner Exemption

Terrain-adjusted effective stack height of device (meters)	Allowable hazardous waste burning rate (gallons/ month)	Terrain-adjusted effective stack height of device (meters)	Allowable hazardous waste burning rate (Gallons/ month)
0 to 3.9	0	40.0 to 44.9	210
4.0 to 5.9	13	45.0 to 49.9	260
6.0 to 7.9	18	50.0 to 54.9	330
8.0 to 9.9	27	55.0 to 59.9	400
10.0 to 11.9	40	60.0 to 64.9	490
12.0 to 13.9	48	65.0 to 69.9	610
14.0 to 15.9	59	70.0 to 74.9	680
16.0 to 17.9	69	75.0 to 79.9	760
18.0 to 19.9	76	80.0 to 84.9	850
20.0 to 21.9	84	85.0 to 89.9	960
22.0 to 23.9	93	90.0 to 94.9	1,100
24.0 to 25.9	100	95.0 to 99.9	1,200
26.0 to 27.9	110	100.0 to 104.9	1,300
28.0 to 29.9	130	105.0 to 109.9	1,500
30.0 to 34.9	140	110.0 to 114.9	1,700
35.0 to 39.9	170	115.0 or greater	1,900

   b. The maximum hazardous waste firing rate does not exceed at any time one percent of the total fuel requirements for the device (hazardous waste plus other fuel) on a total heat input or mass input basis, whichever results in the lower mass feed rate of hazardous waste;

   c. The hazardous waste has a minimum heating value of five thousand British thermal units per pound as generated; and

   d. The hazardous waste fuel does not contain (and is not derived from) hazardous waste number F020, F021, F022, F023, F026, or F027.

2. Mixing with nonhazardous fuels. If hazardous waste fuel is mixed with a nonhazardous fuel, the quantity of hazardous waste before such mixing is used to comply with subsection 1.

3. Multiple stacks. If an owner or operator burns hazardous waste in more than one onsite boiler or industrial furnace exempt under this section, the quantity limits provided by subdivision a of subsection 1 are implemented according to the following equation:

$$\sum_{n} \frac{\text{Actual Quantity Burned}_{(i)}}{} \leq 1.0$$

$\sum_{i=1}^{n}$ Allowable Quantity Burned$_{(i)}$

where:

n = number of stacks;

Actual quantity burned means the waste quantity burned per month in device "i";

Allowable quantity burned means the maximum allowable exempt quantity for stack "i" from the table in subdivision a of subsection 1 above.

Note: Hazardous wastes that are subject to the special requirements for small quantity generators under section 33-24-02-05 may be burned in an offsite device under the exemption provided by section 33-24-05-533, but must be included in the quantity determination for the exemption.

4. Notification requirements. The owner or operator of facilities qualifying for the small quantity burner exemption under this section must provide a one-time signed, written notice to the department indicating the following:

   a. The combustion unit is operating as a small quantity burner of hazardous waste;

   b. The owner and operator are in compliance with the requirements of this section; and

   c. The maximum quantity of hazardous waste that the facility may burn per month as provided by subdivision a of subsection 1 of section 33-24-05-533.

5. Recordkeeping requirements. The owner or operator must maintain at the facility until closure of the boiler or industrial furnace unit sufficient records documenting compliance with the hazardous waste quantity, firing rate, and heating value limits. At a minimum, these records must indicate the quantity of hazardous waste and other fuel burned in each unit per calendar month, and the heating value of the hazardous waste.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-534. ~~[Reserved]~~ Low risk waste exemption.

1. Waiver of destruction and removal efficiency standard. The destruction and removal efficiency standard of subsection 1 of section 33-24-05-529 does not apply if the boiler or industrial furnace is operated in conformance with subdivision a of subsection 1 and the owner or operator demonstrates by procedures prescribed in subdivision b of subsection 1 that the burning will not result in unacceptable adverse health effects.

   a. The device shall be operated as follows:

(1) A minimum of fifty percent of fuel fired to the device shall be fossil fuel, fuels derived from fossil fuel, tall oil, or, if approved by the department on a case-by-case basis, other nonhazardous fuel with combustion characteristics comparable to fossil fuel. Such fuels are termed "primary fuel" for purposes of this section. (Tall oil is a fuel derived from vegetable and rosin fatty acids.) The fifty percent primary fuel firing rate shall be determined on a total heat or mass input basis, whichever results in the greater mass feed rate of primary fuel fired;

(2) Primary fuels and hazardous waste fuels shall have a minimum as-fired heating value of eight thousand British thermal units per pound;

(3) The hazardous waste is fired directly into the primary fuel flame zone of the combustion chamber; and

(4) The device operates in conformance with the carbon monoxide controls provided by subdivision a of subsection 2 of section 33-24-05-529. Devices subject to the exemption provided by this section are not eligible for the alternative carbon monoxide controls provided by subsection 3 of section 33-24-05-529.

b. Procedures to demonstrate that the hazardous waste burning will not pose unacceptable adverse public health effects are as follows:

(1) Identify and quantify those nonmetal compounds listed in appendix V of chapter 33-24-02 that could reasonably be expected to be present in the hazardous waste. The constituents excluded from analysis must be identified and the basis for their exclusion explained.

(2) Calculate reasonable, worst case emission rates for each constituent identified in paragraph 1 of subdivision b of subsection 1 by assuming the device achieves 99.9 percent destruction and removal efficiency. That is, assume that 0.1 percent of the mass weight of each constituent fed to the device is emitted.

(3) For each constituent identified in paragraph 1; use emissions dispersion modeling to predict the maximum annual average ground level concentration of the constituent.

(a) Dispersion modeling shall be conducted using methods specified in subsection 8 of section 33-24-05-531.

(b) Owners and operators of facilities with more than one onsite stack from a boiler or industrial furnace that is exempt under this section must conduct dispersion modeling of emissions from all stacks exempt under this section to predict ambient levels prescribed by this paragraph.

(4) Ground level concentrations of constituents predicted under paragraph 3 must not exceed the following levels:

(a) For the noncarcinogenic compounds listed in appendix XIX of chapter 33-24-05, the levels established in appendix XIX of chapter 33-24-05;

(b) For the carcinogenic compounds listed in appendix XX of chapter 33-24-05, the sum for all constituents of the ratios of the actual ground level concentration to the level established in appendix XX of chapter 33-24-05 cannot exceed 1.0; and

(c) For constituents not listed in appendix XIX or XX of chapter 33-24-05, 0.1 micrograms per cubic meter.

2. Waiver of particular matter standard. The particulate matter standard of section 33-24-05-530 does not apply if:

a. The destruction and removal efficiency standard is waived under subsection 1; and

b. The owner or operator complies with the tier I or adjusted tier I metals feed rate screening limits provided by subsection 2 or 5 of section 33-24-05-531.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-535. ~~[Reserved]~~ Waiver of destruction and removal efficiency trial burn for boilers. Boilers that operate under the special requirements of this section, and that do not burn hazardous waste containing (or derived from) hazardous waste number F020, F021, F022, F023, F026, or F027, are considered to be in conformance with the destruction and removal efficiency standard of subsection 1 of section 33-24-05-529, and a trial burn to demonstrate destruction and removal efficiency is waived. When burning hazardous waste:

1. A minimum of fifty percent of fuel fired to the device shall be fossil fuel, fuels derived from fossil fuel, tall oil, or, if approved by the department on a case-by-case basis, other nonhazardous fuel with combustion characteristics comparable to fossil fuel. Such fuels are termed "primary fuel" for purposes of this section. (Tall oil is a fuel derived from vegetable and rosin fatty acids.) The fifty percent primary fuel firing rate shall be determined on a total heat or mass input basis, whichever results in the greater mass feed rate of primary fuel fired;

2. Boiler load shall not be less than forty percent. Boiler load is the ratio at any time of the total heat input to the maximum design heat input;

3. Primary fuels and hazardous waste fuels shall have a minimum as-fired heating value of eight thousand British thermal units per pound, and each material fired in a burner where hazardous waste is fired must have a heating value of at least eight thousand British thermal units per pound, as-fired;

4. The device shall operate in conformance with the carbon monoxide standard

provided by subdivision a of subsection 2 of section 33-24-05-529. Boilers subject to the waiver of the destruction and removal efficiency trial burn provided by this section are not eligible for the alternative carbon monoxide standard provided by subsection 3 of section 33-24-05-529;

5. The boiler must be a watertube type boiler that does not feed fuel using a stoker or stoker type mechanism; and

6. The hazardous waste shall be fired directly into the primary fuel flame zone of the combustion chamber with an air or steam atomization firing system, mechanical atomization system, or a rotary cup atomization system under the following conditions:

   a. Viscosity. The viscosity of the hazardous waste fuel as-fired shall not exceed three hundred SSU;

   b. Particle size. When a high pressure air or steam atomizer, low pressure atomizer, or mechanical atomizer is used, seventy percent of the hazardous waste fuel must pass through a 200 mesh (74 micron) screen, and when a rotary cup atomizer is used, seventy percent of the hazardous waste must pass through a 100 mesh (150 micron) screen;

   c. Mechanical atomization systems. Fuel pressure within a mechanical atomization system and fuel flow rate shall be maintained within the design range taking into account the viscosity and volatility of the fuel;

   d. Rotary cup atomization systems. Fuel flow rate through a rotary cup atomization system must be maintained within the design range taking into account the viscosity and volatility of the fuel.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-536. ~~[Reserved]~~ Standards for direct transfer.

1. Applicability. The regulations in this section apply to owners and operators of boilers and industrial furnaces subject to section 33-24-05-527 or 33-24-05-528 if hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit.

2. Definitions.

   a. When used in this section, the following terms have the meanings given below:

      (1) Direct transfer equipment means any device (including but not limited to, such devices as piping, fittings, flanges, valves, and pumps) that is used to distribute, meter, or control the flow of hazardous waste between a container (for example, transport vehicle) and a boiler or industrial furnace.

(2) Container means any portable device in which hazardous waste is transported, stored, treated, or otherwise handled, and includes transport vehicles that are containers themselves (for example, tank trucks, tanker-trailers, and rail tank cars), and containers placed on or in a transport vehicle.

b. This section references several requirements provided in sections 33-24-05-89 through 33-24-05-117 and subsection 5 of section 33-24-06-16. For purposes of this section, the term "tank systems" in those referenced requirements means direct transfer equipment as defined in subdivision a.

3. General operating requirements.

a. No direct transfer of a pumpable hazardous waste shall be conducted from an open-top container to a boiler or industrial furnace.

b. Direct transfer equipment used for pumpable hazardous waste shall always be closed, except when necessary to add or remove the waste, and shall not be opened, handled, or stored in a manner that may cause any rupture or leak.

c. The direct transfer of hazardous waste to a boiler or industrial furnace shall be conducted so that it does not:

(1) Generate extreme heat or pressure, fire, explosion, or violent reaction;

(2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health;

(3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

(4) Damage the structural integrity of the container or direct transfer equipment containing the waste;

(5) Adversely affect the capability of the boiler or industrial furnace to meet the standards provided by sections 33-24-05-529 through 33-24-05-532; or

(6) Threaten human health or the environment.

d. Hazardous waste shall not be placed in direct transfer equipment if it could cause the equipment or its secondary containment system to rupture, leak, corrode, or otherwise fail.

e. The owner or operator of the facility shall use appropriate controls and practices to prevent spills and overflows from the direct transfer equipment or its secondary containment systems. These include at a minimum:

(1) Spill prevention controls (for example, check valves, dry discount couplings); and

(2) Automatic waste feed cutoff to use if a leak or spill occurs from the direct transfer equipment.

4. Areas where direct transfer vehicles (containers) are located. Applying the definition of container under this section, owners and operators must comply with the following requirements:

a. The containment requirements of section 33-24-05-94;

b. The use and management requirements of subsection 5 of 33-24-06-16, except that in lieu of the special requirements for ignitable or reactive waste, the owner or operator may comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjacent property line that can be built upon as required in tables 2-1 through 2-6 of the National Fire Protection Association's (NFPA) "Flammable and Combustible Liquids Code", (1977 or 1981), as incorporated by reference, see section 33-24-01-05. The owner or operator must obtain and keep on file at the facility a written certification by the local fire marshall that the installation meets the subject National Fire Protection Association codes; and

c. The closure requirements of section 33-24-05-97.

5. Direct transfer equipment. Direct transfer equipment must meet the following requirements:

a. Secondary containment. Owners and operators shall comply with the secondary containment requirements of subsection 5 of section 33-24-06-16:

(1) For all new direct transfer equipment, prior to their being put into service; and

(2) For existing direct transfer equipment within two years after August 21, 1991.

b. Requirements prior to meeting secondary containment requirements.

(1) For existing direct transfer equipment that does not have secondary containment, the owner or operator shall determine whether the equipment is leaking or is unfit for use. The owner or operator shall obtain and keep on file at the facility a written assessment reviewed and certified by a qualified, registered professional engineer in accordance with subsection 4 of section 33-24-06-03 that attests to the equipment's integrity by August 21, 1992.

(2) This assessment shall determine whether the direct transfer equipment is adequately designed and has sufficient structural strength and compatibility with the waste or wastes to be transferred to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment shall consider the following:

(a) Design standard or standards, if available, according to which the direct transfer equipment was constructed;

(b) Hazardous characteristics of the waste or wastes that have been or will be handled;

(c) Existing corrosion protection measures;

(d) Documented age of the equipment, if available, (otherwise, an estimate of the age); and

(e) Results of a leak test or other integrity examination such that the effects of temperature variations, vapor pockets, cracks, leaks, corrosion, and erosion are accounted for.

(3) If, as a result of the assessment specified above, the direct transfer equipment is found to be leaking or unfit for use, the owner or operator shall comply with the requirements of subsection 5 of section 33-24-06-16.

c. Inspections and recordkeeping.

(1) The owner or operator must inspect at least once each operating hour when hazardous waste is being transferred from the transport vehicle (container) to the boiler or industrial furnace:

(a) Overfill/spill control equipment (for example, waste-feed cutoff systems, bypass systems, and drainage systems) to ensure that it is in good working order;

(b) The aboveground portions of the direct transfer equipment to detect corrosion, erosion, or releases of waste (for example, wet spots, dead vegetation); and

(c) Data gathered from monitoring equipment and leak-detection equipment (for example, pressure and temperature gauges) to ensure that the direct transfer equipment is being operated according to its design.

(2) The owner or operator must inspect cathodic protection systems, if used, to ensure that they are functioning properly according to the schedule provided by subsection 5 of section 33-24-06-16.

(3) Records of inspections made under this subdivision shall be maintained in the operating record at the facility, and available for inspection for at least three years from the date of the inspection.

d. Design and installation of new ancillary equipment. Owners and operators must comply with the requirements of subsection 5 of section 33-24-06-16.

e. Response to leaks or spills. Owners and operators must comply with the requirements of subsection 5 of section 33-24-06-16.

f. Closure. Owners and operators must comply with the requirements of subsection 5 of section 33-24-06-16.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-537. ~~[Reserved]~~ Regulation of residues. A residue derived from the burning or processing of hazardous waste in a boiler or industrial furnace is not excluded from the definition of a hazardous waste under subdivision d, g or h of subsection 2 of section 33-24-02-04 unless the device and the owner or operator meet the following requirements:

1. The device meets the following criteria:

   a. Boilers. Boilers must burn at least fifty percent coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal;

   b. Ore or mineral furnaces. Industrial furnaces subject to subdivision g of subsection 2 of section 33-24-02-04 must process at least fifty percent by weight normal, nonhazardous raw materials;

   c. Cement kilns. Cement kilns must process at least fifty percent by weight normal cement-production raw materials;

2. The owner or operator demonstrates that the hazardous waste does not significantly affect the residue by demonstrating conformance with either of the following criteria:

   a. Comparison of waste-derived residue with normal residue. The waste-derived residue must not contain appendix V of chapter 33-24-02 constituents (toxic constituents) that could reasonably be attributable to the hazardous waste at concentrations significantly higher than in residue generated without burning or processing of hazardous waste, using the following procedure. Toxic compounds that could reasonably be attributable to burning or processing the hazardous waste (constituents of concern) include toxic constituents in the hazardous waste, and the organic compounds listed in appendix XXIII of chapter 33-24-05 that may be generated as products of incomplete combustion. Sampling and analyses shall be in conformance with procedures prescribed in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, incorporated by reference in section 33-24-01-05.

      (1) Normal residue. Concentrations of toxic constituents of concern in normal residue shall be determined based on analyses of a minimum of ten samples representing a minimum of ten days of operation. Composite samples may be used to develop a sample for analysis provided that the compositing period does not exceed twenty-four hours. The upper tolerance limit (at ninety-five percent confidence with a ninety-five percent proportion of the sample distribution) of the concentration in the normal residue shall be considered the statistically derived concentration in the normal residue. If changes in raw materials or fuels reduce the statistically derived concentrations of the toxic constituents of concern in the normal residue, the statistically-derived concentrations must be revised

or statistically derived concentrations of toxic constituents in normal residue must be established for a new mode of operation with the new raw material or fuel. To determine the upper tolerance limit in the normal residue, the owner or operator shall use statistical procedures prescribed in "Statistical Methodology for Bevill Residue Determinations" in appendix XXIV of chapter 33-24-05.

(2) Waste-derived residue. Waste-derived residue shall be sampled and analyzed as often as necessary to determine whether the residue generated during each twenty-four hour period has concentrations of toxic constituents that are higher than the concentrations established for the normal residue under paragraph 1. If so, hazardous waste burning has significantly affected the residue and the residue shall not be excluded from the definition of a hazardous waste. Concentrations of toxic constituents of concern in the waste-derived residue shall be determined based on analysis of one or more samples obtained over a twenty-four hour period. Multiple samples may be analyzed, and multiple samples may be taken to form a composite sample for analysis provided that the sampling period does not exceed twenty-four hours. If more than one sample is analyzed to characterize waste-derived residues generated over a twenty-four-hour period, the concentration of each toxic constituent shall be the arithmetic mean of the concentrations in the samples. No results may be disregarded; or

b. Comparison of waste-derived residue concentrations with health-based limits.

(1) Nonmetal constituents. The concentrations of nonmetal toxic constituents of concern (specified in subdivision a in the waste-derived residue must not exceed the health-based levels specified in appendix XXII of chapter 33-24-05. If a health-based limit for a constituent of concern is not listed in appendix XXII of chapter 33-24-05, then a limit of 0.002 micrograms per kilogram or the level of detection (using analytical procedures prescribed in SW-846), whichever is higher, shall be used; and

(2) Metal constituents. The concentration of metals in an extract obtained using the toxicity characteristic leaching procedure of section 33-24-02-14 must not exceed the levels specified in appendix XXII of chapter 33-24-05; and

(3) Sampling and analysis. Waste-derived residue shall be sampled and analyzed as often as necessary to determine whether the residue generated during each twenty-four hour period has concentrations of toxic constituents that are higher than the health-based levels. Concentrations of toxic constituents of concern in the waste-derived residue shall be determined based on analysis of one or more samples obtained over a twenty-four hour period. Multiple samples may be analyzed, and multiple samples may be taken to form a composite sample for analysis provided that the sampling period does not exceed twenty-four hours. If more than one sample is analyzed to characterize waste-derived residues generated over a twenty-four hour period, the concentration of each toxic constituent shall be

the arithmetic mean of the concentrations in the samples. No results may be disregarded; and

3. Records sufficient to document compliance with the provisions must be retained until closure of the boiler or industrial furnace unit. At a minimum, the following shall be recorded:

   a. Levels of constituents in appendix V of chapter 33-24-02, that are present in waste-derived residues;

   b. If the waste-derived residue is compared with normal residue under subdivision a of subsection 2:

      (1) The levels of constituents in appendix V of chapter 33-24-02, that are present in normal residues; and

      (2) Data and information, including analyses of samples as necessary, obtained to determine if changes in raw materials or fuels would reduce the concentration of toxic constituents of concern in the normal residue.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-538. [Reserved]

33-24-05-539. [Reserved]

33-24-05-540. [Reserved]

33-24-05-541. [Reserved]

33-24-05-542. [Reserved]

33-24-05-543. [Reserved]

33-24-05-544. [Reserved]

33-24-05-545. [Reserved]

33-24-05-546. [Reserved]

33-24-05-547. [Reserved]

33-24-05-548. [Reserved]

33-24-05-549. [Reserved]

33-24-05-550. [Reserved]

33-24-05-551. [Reserved]

33-24-05-552. Corrective action management unit (CAMU).

1. For the purpose of implementing remedies under section 33-24-05-58, the department may designate an area at the facility as a corrective action management unit, as defined in section 33-24-01-04, in accordance with the requirements of this section. One or more corrective action management units may be designated at a facility.

   a. Placement of remediation wastes into or within a corrective action management unit does not constitute land disposal of hazardous wastes.

   b. Consolidation or placement of remediation wastes into or within a corrective action management unit does not constitute creation of a unit subject to minimum technology requirements.

2. The department may designate a regulated unit as a corrective action management unit in accordance with the following:

   a. The department may designate a regulated unit (as defined in subdivision b of subsection 1 of section 33-24-05-47) as a corrective action management unit, or may incorporate a regulated unit into a corrective action management unit, if:

      (1) The regulated unit is closed or closing, meaning it has begun the closure process under section 33-24-05-62; and

      (2) Inclusion of the regulated unit will enhance implementation of effective, protective, and reliable remedial actions for the facility.

   b. The sections 33-24-05-47 through 33-24-05-88 requirements and the unit-specific requirements of sections 33-24-05-01 through 33-24-05-190 and sections 33-24-05-300 through 33-24-05-559 that applied to that regulated unit will continue to apply to that portion of the corrective action management unit after incorporation into the corrective action management unit.

3. The department shall designate a corrective action management unit in accordance with the following:

   a. The corrective action management unit shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies;

   b. Waste management activities associated with the corrective action management unit shall not create unacceptable risks to humans or to the environment resulting from exposure to hazardous wastes or hazardous constituents;

   c. The corrective action management unit may include uncontaminated areas of the facility, only if including such areas for the purpose of managing remediation waste is more protective than management of such wastes at contaminated areas of the facility;

   d. Areas within the corrective action management unit, where wastes remain

in place after closure of the corrective action management unit, shall be managed and contained so as to minimize future releases, to the extent practicable;

e. The corrective action management unit shall expedite the timing of remedial activity implementation, when appropriate and practicable;

f. The corrective action management unit shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the corrective action management unit; and

g. The corrective action management unit shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the corrective action management unit.

4. The owner or operator shall provide sufficient information to enable the department to designate a corrective action management unit in accordance with the criteria in section 33-24-05-552.

5. The department shall specify, in the permit or order, requirements for corrective action management units to include the following:

a. The real configuration of the corrective action management unit.

b. Requirements for remediation waste management to include the specification of applicable design, operation, and closure requirements.

c. Requirements for ground water monitoring that are sufficient to:

(1) Continue to detect and to characterize the nature, extent, concentration, direction, and movement of existing releases of hazardous constituents in ground water from sources located within the corrective action management unit; and

(2) Detect and subsequently characterize releases of hazardous constituents to ground water that may occur from areas of the corrective action management unit in which wastes will remain in place after closure of the corrective action management unit.

d. Closure and postclosure requirements.

(1) Closure of corrective action management units shall:

(a) Minimize the need for further maintenance; and

(b) Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, for areas where wastes remain in place, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, to surface waters, or to the atmosphere.

(2) Requirements for closure of corrective action management units shall include the following, as appropriate and as deemed necessary by the department for a given corrective action management unit:

(a) Requirements for excavation, removal, treatment, or containment of wastes;

(b) For areas in which wastes will remain after closure of the corrective action management unit, requirements for capping of such areas; and

(c) Requirements for removal and decontamination of equipment, devices, and structures used in remediation waste management activities within the corrective action management unit.

(3) In establishing specific closure requirements for corrective action management units under subsection 5, the department shall consider the following factors:

(a) corrective action management unit characteristics;

(b) Volume of wastes which remain in place after closure;

(c) Potential for releases from the corrective action management unit;

(d) Physical and chemical characteristics of the waste;

(e) Hydrological and other relevant environmental conditions at the facility which may influence the migration of any potential or actual releases; and

(f) Potential for exposure of humans and environmental receptors if releases were to occur from the corrective action management unit.

(4) Postclosure requirements as necessary to protect human health and the environment, to include, for areas where wastes will remain in place, monitoring and maintenance activities, and the frequency with which such activities shall be performed to ensure the integrity of any cap, final cover, or other containment system.

6. The department shall document the rationale for designating corrective action management units and shall make such documentation available to the public.

7. Incorporation of a corrective action management unit into an existing permit must be approved by the department according to the procedures for department-initiated permit modifications under section 33-24-06-12, or according to the permit modification procedures of section 33-24-06-14.

8. The designation of a corrective action management unit does not change the department's existing authority to address cleanup levels, media-specific points of compliance to be applied to remediation at a facility, or other remedy selection decisions.

History: Effective Janaury 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-553. Temporary units (TU).

1. For temporary tanks and container storage areas used for treatment or storage of hazardous remediation wastes during remedial activities required under section 33-24-05-58), the department may determine that a design, operating, or closure standard applicable to such units may be replaced by alternative requirements which are protective of human health and the environment.

2. Any temporary unit to which alternative requirements are applied in accordance with subsection 1 must be:

   a. Located within the facility boundary; and

   b. Used only for treatment or storage of remediation wastes.

3. In establishing standards to be applied to a temporary unit, the department shall consider the following factors:

   a. Length of time such unit will be in operation;

   b. Type of unit;

   c. Volumes of wastes to be managed;

   d. Physical and chemical characteristics of the wastes to be managed in the unit;

   e. Potential for releases from the unit;

   f. Hydrogeological and other relevant environmental conditions at the facility which may influence the migration of any potential releases; and

   g. Potential for exposure of humans and environmental receptors if releases were to occur from the unit.

4. The department shall specify in the permit or order the length of time a temporary unit will be allowed to operate, to be no longer than a period of one year. The department shall also specify the design, operating, and closure requirements for the unit.

5. The department may extend the operational period of a temporary unit once for no longer than a period of one year beyond that originally specified in the permit or order, if the department determines that:

   a. Continued operation of the unit will not pose a threat to human health and the environment; and

   b. Continued operation of the unit is necessary to ensure timely and efficient implementation of remedial actions at the facility.

6. Incorporation of a temporary unit or a time extension for a temporary unit into an existing permit must be:

   a. Approved in accordance with the procedures for department-initiated permit modifications under section 33-24-06-12; or

   b. Requested by the owner or operator as a class II modification according to the procedures under section 33-24-06-14.

7. The department shall document the rationale for designating a temporary unit and for granting time extensions for temporary units and shall make such documentation available to the public.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-554. [Reserved]

33-24-05-555. [Reserved]

33-24-05-556. [Reserved]

33-24-05-557. [Reserved]

33-24-05-558. [Reserved]

33-24-05-559. [Reserved]

33-24-05-560. [Reserved]

33-24-05-561. [Reserved]

33-24-05-562. [Reserved]

33-24-05-563. [Reserved]

33-24-05-564. [Reserved]

33-24-05-565. [Reserved]

33-24-05-566. [Reserved]

33-24-05-567. [Reserved]

33-24-05-568. [Reserved]

33-24-05-569. [Reserved]

33-24-05-570. [Reserved]

33-24-05-571. [Reserved]

33-24-05-572. [Reserved]

33-24-05-573. [Reserved]

33-24-05-574. [Reserved]

33-24-05-575. [Reserved]

33-24-05-576. [Reserved]

33-24-05-577. [Reserved]

33-24-05-578. [Reserved]

33-24-05-579. [Reserved]

33-24-05-580. [Reserved]

33-24-05-581. [Reserved]

33-24-05-582. [Reserved]

33-24-05-583. [Reserved]

33-24-05-584. [Reserved]

33-24-05-585. [Reserved]

33-24-05-586. [Reserved]

33-24-05-587. [Reserved]

33-24-05-588. [Reserved]

33-24-05-589. [Reserved]

33-24-05-590. [Reserved]

33-24-05-591. [Reserved]

33-24-05-592. [Reserved]

33-24-05-593. [Reserved]

33-24-05-594. [Reserved]

33-24-05-595. [Reserved]

33-24-05-596. [Reserved]

33-24-05-597. [Reserved]

33-24-05-598. [Reserved]

33-24-05-599. [Reserved]

33-24-05-600. Definitions for the management of used oil. Terms that are defined in sections 33-24-01-04, 33-24-02-01, and chapter 33-24-08 have the same meanings when used in sections 33-24-05-600 through 33-24-05-689.

1. "Aboveground tank" means a tank used to store or process used oil that is not an underground storage tank as defined in chapter 33-24-08.

2. "Container" means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

3. "Do-it-yourselfer used oil collection center" means any site or facility that accepts aggregates and stores used oil collected only from household do-it-yourselfers.

4. "Existing tank" means a tank that is used for the storage or processing of used oil and that is in operation, or for which installation has commenced on or prior to the effective date of the authorized used oil program for the state in which the tank is located. Installation will be considered to have commenced if the owner or operator has obtained all federal, state, and local approvals or permits necessary to begin installation of the tank and if either:

   a. A continuous onsite installation program has begun, or

   b. The owner or operator has entered into contractual obligations, which cannot be canceled or modified without substantial loss, for installation of the tank to be completed within a reasonable time.

5. "Household do-it-yourselfer used oil" means oil that is derived from households, such as used oil generated by individuals who generate used oil through the maintenance of their personal vehicles.

6. "Household do-it-yourselfer used oil generator" means an individual who generates household do-it-yourselfer used oil.

7. "New tank" means a tank that will be used to store or process used oil and for which installation has commenced after the effective date of the authorized used oil program for the state in which the tank is located.

8. "Petroleum refining facility" means an establishment primarily engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, and lubricants, through fractionation, straight distillation of crude oil, redistillation of unfinished petroleum derivatives, cracking or other processes, for example, facilities classified as standard industrial code 2911.

~~8~~9. "Processing" means chemical or physical operations designed to produce from used oil, or to make used oil more amenable for production of, fuel oils, lubricants, or other used oil-derived product. Processing includes, but is not limited to: blending used oil with virgin petroleum products, blending used oils to meet the fuel specification, filtration, simple distillation,

chemical or physical separation, and re-refining.

~~9~~10. "Re-refining distillation bottoms" means the heavy fraction produced by vacuum distillation of filtered and dehydrated used oil. The composition of still bottoms varies with column operation and feedstock.

~~10~~11. "Tank" means any stationary device, designed to contain an accumulation of used oil which is constructed primarily of nonearthen materials, (for example, wood, concrete, steel, plastic) which provides structural support.

~~11~~12. "Used oil" means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

~~12~~13. "Used oil aggregation point" means any site or facility that accepts, aggregates, or stores used oil collected only from other used oil generation sites owned or operated by the owner or operator of the aggregation point, from which used oil is transported to the aggregation point in shipments of no more than fifty-five gallons. Used oil aggregation points may also accept used oil from household do-it-yourselfers.

~~13~~14. "Used oil burner" means a facility where used oil not meeting the specification requirements in section 33-24-05-611 is burned for energy recovery in devices identified in subsection 1 of section 33-24-05-661.

~~14~~15. "Used oil collection center" means any site or facility that is registered, licensed, and permitted, and recognized by a state, county, or municipal government to manage used oil and accepts, aggregates, and stores used oil collected from used oil generators regulated under sections 33-24-05-620 through 33-24-05-629 who bring used oil to the collection center in shipments of no more than fifty-five [208.20 liters] gallons under the provisions of section 33-24-05-624. Used oil collection centers may also accept used oil from household do-it-yourselfers.

~~15~~16. "Used oil fuel marketer" means any person who conducts either of the following activities:

a. Directs a shipment of off-specification used oil from their facility to a used oil burner; or

b. First claims that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in section 33-24-05-611.

~~16~~17. "Used oil generator" means any person, by site, whose act or process produces used oil or whose act first causes used oil to become subject to regulation.

~~17~~18. "Used oil processor" means a facility that processes used oil.

~~18~~19. "Used oil transfer facility" means any transportation-related facility including loading docks, parking areas, storage areas, and other areas where shipments of used oil are held for more than twenty-four hours ~~during the normal course of transportation~~ and not longer than thirty-five days~~.~~ during the normal course of transportation or prior to an activity performed pursuant to subdivision b of subsection 2 of section 33-24-05-620. Transfer facilities

that store used oil for more than thirty-five days are subject to regulation under sections 33-24-05-650 through 33-24-05-659.

~~19~~20. "Used oil transporter" means any person who transports used oil, any person who collects used oil from more than one generator and transports the collected oil, and owners and operators of used oil transfer facilities. Used oil transporters may consolidate or aggregate loads of used oil for purposes of transportation but, with the following exception, may not process used oil. Transporters may conduct incidental processing operations that occur in the normal course of used oil transportation (for example, settling and water separation), but that are not designed to produce (or make more amenable for production of) used oil derived products or used oil fuel.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-601. [Reserved]

33-24-05-602. [Reserved]

33-24-05-603. [Reserved]

33-24-05-604. [Reserved]

33-24-05-605. [Reserved]

33-24-05-606. [Reserved]

33-24-05-607. [Reserved]

33-24-05-608. [Reserved]

33-24-05-609. [Reserved]

33-24-05-610. Applicability of used oil standards. This section identifies those materials that are subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689. This section also identifies some materials that are not subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689, and indicates whether these materials may be subject to regulation as hazardous waste under article 33-24.

1. Used oil. The department presumes that used oil is to be recycled unless a used oil handler disposes of used oil, or sends used oil for disposal. Except as provided in section 33-24-05-611, the regulations of sections 33-24-05-600 through 33-24-05-689 apply to used oil and to materials identified in this section as being subject to regulation as used oil, whether or not the used oil or material exhibits any characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14.

2. Mixtures of used oil and hazardous waste.

a. Listed hazardous waste.

(1) Mixtures of used oil and hazardous waste that is listed in sections 33-24-02-15 through 33-24-02-19 are subject to regulation as hazardous waste under article 33-24, rather than as used oil under sections 33-24-05-600 through 33-24-05-689.

(2) Rebuttable presumption for used oil. Used oil containing ~~more~~ greater than or equal to one thousand parts per million total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in sections 33-24-02-15 through 33-24-02-19. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by using an analytical method from SW-846, edition III, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix V of chapter 33-24-02). ~~Environmental Protection Agency Publication SW-846, third edition, is available for the cost of one hundred ten dollars from the Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, 202-783-3238 (document number 955-001-00000-1).~~

(a) The rebuttable presumption does not apply to metalworking oils or fluids containing chlorinated paraffins, if they are processed, through a tolling arrangement as described in subsection 3 of section 33-24-05-624, to reclaim metalworking oils or fluids. The presumption does apply to metalworking oils or fluids if such oils or fluids are recycled in any other manner, or disposed.

(b) The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where the chlorofluorocarbons are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with chlorofluorocarbons that have been mixed with used oil from sources other than refrigeration units.

b. Characteristic hazardous waste. Mixtures of used oil and hazardous waste that solely exhibits one or more of the hazardous waste ~~characteristic~~ characteristics identified in sections 33-24-02-10 through 33-24-02-14 and mixtures of used oil and hazardous waste that is listed in sections 33-24-02-15 through 33-24-02-19 solely because it exhibits one or more of the characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14 are subject to:

(1) Except as provided in paragraph c of subdivision b of subsection 2, regulation as hazardous waste under article 33-24 rather than as used oil under sections 33-24-05-600 through 33-24-05-689, if the resultant mixture exhibits any characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14; or

(2) Except as specified in paragraph 3 of subdivision b of subsection

2 of section 33-24-05-610, regulation as used oil under sections 33-24-05-600 through 33-24-05-689, if the resultant mixture does not exhibit any characteristics of hazardous waste identified under sections 33-24-02-10 through 33-24-02-14.

(3) Regulation as used oil under sections 33-24-05-600 through 33-24-05-689, if the mixture is of used oil and a waste which is hazardous solely because it exhibits the characteristic of ignitability ~~and is not listed in sections 33-24-02-15 through 33-24-02-19 (for example, mineral spirits)~~, for example, ignitable-only mineral spirits, provided that the resultant mixture does not exhibit the characteristic of ignitability under section 33-24-02-11.

c. Conditionally exempt small quantity generator hazardous waste. Mixtures of used oil and conditionally exempt small quantity generator hazardous waste regulated under section 33-24-02-05 are subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689.

3. Materials containing or otherwise contaminated with used oil.

a. Except as provided in subdivision b of subsection 3, materials containing or otherwise contaminated with used oil from which the used oil has been properly drained or removed to the extent possible such that no visible signs of free-flowing oil remain in or on the material:

(1) Are not used oil and thus not subject to sections 33-24-05-600 through 33-24-05-689, and

(2) If applicable are subject to the hazardous waste regulations of article 33-24.

b. Materials containing or otherwise contaminated with used oil that are burned for energy recovery are subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689.

c. Used oil drained or removed from materials containing or otherwise contaminated with used oil is subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689.

4. Mixtures of used oil with products.

a. Except as provided in subdivision b of subsection 4, mixtures of used oil and fuels or other fuel products are subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689.

b. Mixtures of used oil and diesel fuel mixed onsite by the generator of the used oil for use in the generator's own vehicles are not subject to sections 33-24-05-600 through 33-24-05-689 once the used oil and diesel fuel have been mixed. Prior to mixing, the used oil is subject to the requirements of sections 33-24-05-620 through 33-24-05-629.

5. Materials derived from used oil.

a. Materials that are reclaimed from used oil that are used beneficially and are not burned for energy recovery or used in a manner constituting disposal (~~e.g.,~~ for example, re-refined lubricants) are:

(1) Not used oil and thus are not subject to sections 33-24-05-600 through 33-24-05-689; and

(2) Not solid wastes and are thus not subject to the hazardous waste regulations of article 33-24 as provided in paragraph a of subdivision b of subsection 3 of section 33-24-02-03.

b. Materials produced from used oil that are burned for energy recovery (~~e.g.,~~ for example, used oil fuels) are subject to regulation as used oil under sections 33-24-05-600 through 33-24-05-689.

c. Except as provided in subdivision d of subsection 5, materials derived from used oil that are disposed of or used in a manner constituting disposal are:

(1) Not used oil and thus are not subject to sections 33-24-05-600 through 33-24-05-689; and

(2) Are solid wastes and thus are subject to the hazardous waste regulations of article 33-24 if the materials are listed or identified as hazardous waste.

d. Used oil re-refining distillation bottoms that are used as feedstock to manufacture asphalt products are not subject to sections 33-24-05-600 through 33-24-05-689.

6. Wastewater. Wastewater, the discharge of which is subject to regulation under either section 402 or section 307(b) of the Clean Water Act (including wastewaters at facilities which have eliminated the discharge of wastewater), contaminated with de minimis quantities of used oil are not subject to the requirements of sections 33-24-05-600 through 33-24-05-689. For purposes of this paragraph, de minimis quantities of used oils are defined as small spills, leaks, or drippings from pumps, machinery, pipes, and other similar equipment during normal operations or small amounts of oil lost to the wastewater treatment system during washing or draining operations. This exception will not apply if the used oil is discarded as a result of abnormal manufacturing operations resulting in substantial leaks, spills, or other releases, or to used oil recovered from wastewaters.

7. Used oil introduced into crude oil ~~or natural gas~~ pipelines~~.~~ or a petroleum refining facility. ~~Used oil that is placed directly into a crude oil or natural gas pipeline is subject to the management standards of sections 33-24-05-600 through 33-24-05-689 only prior to the point of introduction to the pipeline. Once the used oil is introduced to the pipeline, the material is exempt from the requirements of sections 33-24-05-600 through 33-24-05-689.~~

a. Used oil mixed with crude oil or natural gas liquids (for example, in a production separator or crude oil stock tank) for insertion into a crude oil pipeline is exempt from the requirements of sections 33-24-05-600 through 33-24-05-689. The used oil is subject to the requirements of

sections 33-24-05-600 through 33-24-05-689 prior to the mixing of used oil with crude oil or natural gas liquids.

b. Mixtures of used oil and crude oil or natural gas liquids containing less than one percent used oil that are being stored or transported to a crude oil pipeline or petroleum refining facility for insertion in the refining process at a point prior to crude distillation or catalytic cracking are exempt from the requirements of sections 33-24-05-600 through 33-24-05-689.

c. Used oil that is inserted into the petroleum refining facility process before crude distillation or catalytic cracking without prior mixing with crude oil is exempt from the requirements of sections 33-24-05-600 through 33-24-05-689 provided that the used oil constitutes less than one percent of the crude oil feed to any petroleum refining facility process unit at any given time. Prior to insertion in the petroleum refining facility process, the used oil is subject to the requirements of sections 33-24-05-600 through 33-24-05-689.

d. Except as provided in subdivision e of subsection 7, used oil that is introduced into a petroleum refining facility process after crude distillation or catalytic cracking is exempt from the requirements of sections 33-24-05-600 through 33-24-05-689 only if the used oil meets the specification of section 33-24-05-611. Prior to insertion in the petroleum refining facility process, the used oil is subject to the requirements of sections 33-24-05-600 through 33-24-05-689.

e. Used oil that is incidentally captured by a hydrocarbon recovery system or wastewater treatment system as part of routine process operations at a petroleum refining facility and inserted into the petroleum refining facility process is exempt from the requirements of sections 33-24-05-600 through 33-24-05-689. This exemption does not extend to used oil which is intentionally introduced into a hydrocarbon recovery system (for example, by pouring collected used oil into the wastewater treatment system).

f. Tank bottoms from stock tanks containing mixtures of used oil and crude oil or natural gas liquids are exempt from the requirements of sections 33-24-05-600 through 33-24-05-689.

8. Used oil on vessels. Used oil produced on vessels from normal shipboard operations is not subject to sections 33-24-05-600 through 33-24-05-689 until it is transported ashore.

9. Used oil containing polychlorinatedbiphenyls. In addition to the requirements of sections 33-24-05-600 through 33-24-05-689, marketers and burners of used oil who market or burn used oil containing any quantifiable level of polychlorinated biphenyls are subject to the requirements found at 40 CFR 761.20(e).

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-611. Used oil specifications. Used oil burned for energy recovery, and any fuel produced from used oil by processing, blending, or other treatment, is subject to regulation under sections 33-24-05-600 through 33-24-05-689 unless it is shown not to exceed any of the allowable levels of the constituents and properties in the specification shown in table 1. Once used oil that is to be burned for energy recovery has been shown not to exceed any specification and the person making that showing complies with sections 33-24-05-672, 33-24-05-673, and subsection 2 of section 33-24-05-674, the used oil is no longer subject to sections 33-24-05-600 through 33-24-05-689.

Table 1. Used Oil not Exceeding any Specification Level is not Subject to Sections 33-24-05-600 Through 33-24-05-689 When Burned for Energy Recovery[1]

Constituent/Property	Allowable Level
Arsenic	5 ppm maximum.
Cadmium	2 ppm maximum.
Chromium	10 ppm maximum.
Lead	100 ppm maximum.
Flash point	100 °F minimum.
Total halogens	4,000 ppm maximum.[2]

Note: Applicable standards for the burning of used oil containing polychlorinatedbiphenyls are imposed by 40 CFR 761.20(e).

FOOTNOTE: [1]The specification does not apply to mixtures of used oil and hazardous waste that continue to be regulated as hazardous waste (see subsection 2 of section 33-24-05-610).
FOOTNOTE: [2]Used oil containing ~~more~~ greater than or equal to one thousand parts per million total halogens is presumed to be a hazardous waste under the rebuttable presumption provided under subdivision a of subsection 2 of section 33-24-05-610. Such used oil is subject to sections 33-24-05-525 through 33-24-05-549 rather than sections 33-24-05-600 through 33-24-05-689 when burned for energy recovery unless the presumption of mixing can be successfully rebutted.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03.
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-612. Prohibitions.

1. Surface impoundment prohibition. Used oil shall not be managed in surface impoundments or waste piles unless the units are subject to regulation under sections 33-24-05-01 through 33-24-05-190, sections 33-24-05-300 through 33-24-05-624 or subsection 5 of section 33-24-06-16.

2. Use as a dust suppressant. The use of used oil as a dust suppressant is prohibited.

3. Burning in particular units. Off-specification used oil fuel may be burned for energy recovery in only the following devices:

   a. Industrial furnaces identified in section 33-24-01-04;

   b. Boilers, as defined in section 33-24-01-04, that are identified as follows:

(1) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes;

(2) Utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale; or

(3) Used oil-fired space heaters provided that the burner meets the provisions of section 33-24-05-623.

c. Hazardous waste incinerators subject to regulation under sections 33-24-05-144 through 33-24-05-159 and subsection 5 of section 33-24-06-16.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-613. [Reserved]

33-24-05-614. [Reserved]

33-24-05-615. [Reserved]

33-24-05-616. [Reserved]

33-24-05-617. [Reserved]

33-24-05-618. [Reserved]

33-24-05-619. [Reserved]

33-24-05-620. Applicability of standards for used oil generators.

1. General. Except as provided in subdivisions a through d, sections 33-24-05-620 through 33-24-05-629 apply to all used oil generators. A used oil generator is any person, by site, whose act or process produces used oil or whose act first causes used oil to become subject to regulation.

   a. Household do-it-yourselfer used oil generators. Household do-it-yourselfer used oil generators are not subject to regulation under sections 33-24-05-620 through 33-24-05-629.

   b. Vessels. Vessels at sea or at port are not subject to sections 33-24-05-620 through 33-24-05-629. For purposes of sections 33-24-05-620 through 33-24-05-629, used oil produced on vessels from normal shipboard operations is considered to be generated at the time it is transported ashore. The owner or operator of the vessel and the persons removing or accepting used oil from the vessel are cogenerators of the used oil and are both responsible for managing the waste in compliance with sections 33-24-05-620 through 33-24-05-629 once the used oil is transported ashore. The cogenerators may decide among them which party will fulfill the requirements of sections 33-24-05-620 through 33-24-05-629.

c. Diesel fuel. Mixtures of used oil and diesel fuel mixed by the generator of the used oil for use in the generator's own vehicles are not subject to sections 33-24-05-620 through 33-24-05-629 once the used oil and diesel fuel have been mixed. Prior to mixing, the used oil fuel is subject to the requirements of sections 33-24-05-620 through 33-24-05-629.

d. Farmers. Farmers who generate an average of twenty-five gallons [94.64 liters] per month or less of used oil from vehicles or machinery used on the farm in a calendar year are not subject to the requirements of sections 33-24-05-600 through 33-24-05-689.

2. Other applicable provisions. Used oil generators who conduct the following activities are subject to the requirements of other applicable provisions of sections 33-24-05-600 through 33-24-05-689 as indicated in subdivisions a through d of subsection 2:

a. Generators who transport used oil, except under the self-transport provisions of subsections 1 and 2 of section 33-24-05-624, must also comply with sections 33-24-05-640 through 33-24-05-649.

b. Generators who process used oil must also comply with sections 33-24-05-650 through 33-24-05-659.

(1) Except as provided in paragraph 2 of subdivision b, generators who process or re-refine used oil must also comply with sections 33-24-05-650 through 33-24-05-659.

(2) Generators who perform the following activities are not processors provided that the used oil is generated onsite and is not being sent offsite to a burner of onsite or off-specification used oil fuel.

(a) Filtering, cleaning, or otherwise reconditioning used oil before returning it for reuse by the generator;

(b) Separating used oil from wastewater generated onsite to make the wastewater acceptable for discharge or reuse pursuant to section 402 or section 307(b) of the Clean Water Act or other applicable federal or state regulations governing the management of discharge of wastewaters;

(c) Using oil mist collectors to remove small droplets of used oil from in-plant air to make plant air suitable for continued recirculation;

(d) Draining or otherwise removing used oil from materials containing or otherwise contaminated with used oil in order to remove excessive oil to the extent possible pursuant to subsection 3 of section 33-24-05-610; or

(e) Filtering, cleaning, or otherwise reconditioning used oil before burning it in a space heater pursuant to section 33-24-05-623.

c. Generators who burn off-specification used oil for energy recovery, except under the onsite space heater provisions of section 33-24-05-623, must also comply with sections 33-24-05-660 through 33-24-05-669.

d. Generators who direct shipments of off-specification used oil from their facility to a used oil burner or first claim that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in section 33-24-05-611 must also comply with sections 33-24-05-670 through 33-24-05-679.

e. Generators who dispose of used oil must also comply with sections 33-24-05-680 through 33-24-05-689.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-621. Hazardous waste mixing.

1. Mixtures of used oil and hazardous waste must be managed in accordance with subsection 2 of section 33-24-05-610.

2. The rebuttable presumption for used oil of paragraph 2 of subdivision a of subsection 2 of section 33-24-05-610 applies to used oil managed by generators. Under the rebuttable presumption for used oil of paragraph 2 of subdivision a of subsection 2 of section 33-24-05-610, used oil containing greater than or equal to one thousand parts per million total halogens is presumed to be a hazardous waste and thus must be managed as hazardous waste and not as used oil unless the presumption is rebutted. However, the rebuttable presumption does not apply to certain metalworking oils or fluids and certain used oils removed from refrigeration units.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-622. Used oil storage. ~~Control and used~~ Used oil generators are subject to all applicable spill prevention, control, and countermeasures [40 CFR part 112] in addition to the requirements of sections 33-24-05-620 through 33-24-05-629. Used oil generators are also subject to the underground storage tank (chapter 33-24-08) standards for used oil stored in underground tanks whether or not the used oil exhibits any characteristics of hazardous waste, in addition to the requirements of sections 33-24-05-620 through 33-24-05-629.

1. Storage units. Used oil generators shall not store used oil in units other than tanks or containers subject to regulation under sections 33-24-05-01 through 33-24-05-190~~,~~ and sections 33-24-05-300 through 33-24-05-624~~, and~~ or subsection 5 of section 33-24-06-16.

2. Condition of units. Containers and aboveground tanks used to store used oil at generator facilities must be:

a. In good condition (no severe rusting, apparent structural defects, or deterioration); and

b. Not leaking (no visible leaks).

3. Labels.

a. Containers and aboveground tanks used to store used oil at generator facilities must be labeled or marked clearly with the words "Used Oil".

b. Fill pipes used to transfer used oil into underground storage tanks at generator facilities must be labeled or marked clearly with the words "Used Oil".

4. Response to releases. Upon detection of a release of used oil to the environment not subject to the requirements of chapter 33-24-08, sections 33-24-05-650 through 33-24-05-659 which has occurred after the effective date of the authorized used oil program for the state in which the release is located, a generator must perform the following cleanup steps:

a. Stop the release;

b. Contain the released used oil;

c. Clean up and manage properly the released used oil and other materials; and

d. If necessary to prevent future releases, repair or replace any leaking used oil storage containers or tanks prior to returning them to service.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-623. Onsite burning in space heaters. Generators may burn used oil in used oil-fired space heaters provided that:

1. The heater burns only used oil that the owner or operator generates or used oil received from household do-it-yourselfer used oil generators;

2. The heater is designed to have a maximum capacity of not more than 0.5 million British thermal units per hour; and

3. The combustion gases from the heater are vented to the ambient air.

History: Effective Januarey 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-624. Offsite shipments. Except as provided in subsections 1 through 3, generators must ensure that their used oil is transported only by transporters who have obtained environmental protection agency identification numbers.

1. Self-transportation of small amounts to approved collection centers. Generators may transport, without an environmental protection agency identification number, used oil that is generated at the generator's site and used oil collected from household do-it-yourselfers to a used oil collection center provided that:

   a. The generator transports the used oil in a vehicle owned by the generator or owned by an employee of the generator;

   b. The generator transports no more than fifty-five gallons [208.20 liters] of used oil at any time; and

   c. The generator transports the used oil to a used oil collection center that is registered, licensed, permitted, or recognized by a state, county, and municipal government to manage used oil.

2. Self-transportation of small amounts to aggregation points owned by the generator. Generators may transport, without an environmental protection agency identification number, used oil that is generated at the generator's site to an aggregation point provided that:

   a. The generator transports the used oil in a vehicle owned by the generator or owned by an employee of the generator;

   b. The generator transports no more than fifty-five gallons of used oil at any time; and

   c. The generator transports the used oil to an aggregation point that is owned or operated by the same generator.

3. Tolling arrangements. Used oil generators may arrange for used oil to be transported by a transporter without an environmental protection agency identification number if the used oil is reclaimed under a contractual agreement pursuant to which reclaimed oil is returned by the processor to the generator for use as a lubricant, cutting oil, or coolant. The contract (known as a "tolling arrangement") must indicate:

   a. The type of used oil and the frequency of shipments;

   b. That the vehicle used to transport the used oil to the processing facility and to deliver recycled used oil back to the generator is owned and operated by the used oil processor; and

   c. That reclaimed oil will be returned to the generator.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-625. [Reserved]

33-24-05-626. [Reserved]

33-24-05-627. [Reserved]

33-24-05-628. [Reserved]

33-24-05-629. [Reserved]

33-24-05-630. Do-it-yourselfer used oil collection centers.

1. Applicability. This section applies to owners or operators of all do-it-yourselfer used oil collection centers. A do-it-yourselfer used oil collection center is any site or facility that accepts, aggregates, and stores used oil collected only from household do-it-yourselfers.

2. Do-it-yourselfer used oil collection center requirements. Owners or operators of all do-it-yourselfer used oil collection centers must comply with the generator standards in sections 33-24-05-620 through 33-24-05-629.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-631. Used oil collection centers.

1. Applicability. This section applies to owners or operators of used oil collection centers. A used oil collection center is any site or facility that accepts, aggregates, and stores used oil collected from used oil generators regulated under sections 33-24-05-620 through 33-24-05-629 who bring used oil to the collection center in shipments of no more than fifty-five gallons under the provisions of subsection 1 of section 33-24-05-624. Used oil collection centers may also accept used oil from household do-it-yourselfers.

2. Used oil collection center requirements. Owners or operators of all used oil collection centers must:

   a. Comply with the generator standards in sections 33-24-05-620 through 33-24-05-629; and

   b. Be registered, licensed, permitted and recognized by a state, county, and municipal government to manage used oil.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-632. Used oil aggregation points owned by the generator.

1. Applicability. This section applies to owners or operators of all used oil aggregation points. A used oil aggregation point is any site or facility that accepts, aggregates, or stores used oil collected only from other used oil generation sites owned or operated by the owner or operator of the aggregation point, from which used oil is transported to the aggregation point in shipments of no more than fifty-five gallons [208.20 liters] under the

provisions of subsection 2 of section 33-24-05-624. Used oil aggregation points may also accept used oil from household do-it-yourselfers.

2. Used oil aggregation point requirements. Owners or operators of all used oil aggregation points must comply with the generator standards in sections 33-24-05-620 through 33-24-05-629.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-633. [Reserved]

33-24-05-634. [Reserved]

33-24-05-635. [Reserved]

33-24-05-636. [Reserved]

33-24-05-637. [Reserved]

33-24-05-638. [Reserved]

33-24-05-639. [Reserved]

33-24-05-640. Applicability of standards for used oil transporters and transfer facilities.

1. General. Except as provided in subdivisions a through d of subsection 1, sections 33-24-05-640 through 33-24-05-649 apply to all used oil transporters. Used oil transporters are persons who transport used oil, persons who collect used oil from more than one generator and transport the collected oil, and owners and operators of used oil transfer facilities.

   a. Sections 33-24-05-640 through 33-24-05-649 do not apply to onsite transportation.

   b. Sections 33-24-05-640 through 33-24-05-649 do not apply to generators who transport shipments of used oil totaling fifty-five gallons [202.20 liters] or less from the generator to a used oil collection center as specified in subsection 1 of section 33-24-05-624.

   c. Sections 33-24-05-640 through 33-24-05-649 do not apply to generators who transport shipments of used oil totaling fifty-five gallons [202.20 liters] or less from the generator to a used oil aggregation point owned or operated by the same generator as specified in subsection 2 of section 33-24-05-624.

   d. Sections 33-24-05-640 through 33-24-05-649 do not apply to transportation of used oil from household do-it-yourselfers to a regulated used oil generator, collection center, aggregation point, processor, or burner subject to the requirements of this part. Except as provided in subdivisions a through c of subsection 1, sections 33-24-05-640 through

33-24-05-649 do, however, apply to transportation of collected household do-it-yourselfer used oil from regulated used oil generators, collection centers, aggregation points, or other facilities where household do-it-yourselfer used oil is collected.

2. Imports and exports. Transporters who import used oil from abroad or export used oil outside of the United States are subject to the requirements of sections 33-24-05-640 through 33-24-05-649 from the time the used oil enters and until the time it exits the United States.

3. Trucks used to transport hazardous waste. Unless trucks previously used to transport hazardous waste are emptied as described in section 33-24-02-07 prior to transporting used oil, the used oil is considered to have been mixed with the hazardous waste and must be managed as hazardous waste unless, under the provisions of subsection 2 of section 33-24-05-610, the hazardous waste used oil mixture is determined not to be hazardous waste.

4. Other applicable provisions. Used oil transporters who conduct the following activities are also subject to other applicable provisions of sections 33-24-05-600 through 33-24-05-689 as indicated in subdivisions a through e of subsection 4:

   a. Transporters who generate used oil must also comply with sections 33-24-05-620 through 33-24-05-629;

   b. Transporters who process used oil, except as provided in section 33-24-05-641, must also comply with sections 33-24-05-650 through 33-24-05-659;

   c. Transporters who burn off-specification used oil for energy recovery must also comply with sections 33-24-05-660 through 33-24-05-669;

   d. Transporters who direct shipments of off-specification used oil from their facility to a used oil burner or first claim that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in section 33-24-05-611 must also comply with sections 33-24-05-670 through 33-24-05-679; and

   e. Transporters who dispose of used oil must also comply with sections 33-24-05-680 through 33-24-05-689.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-641. Restrictions on transporters who are not also processors.

1. Used oil transporters may consolidate or aggregate loads of used oil for purposes of transportation. However, except as provided in subsection 2, used oil transporters may not process used oil unless they also comply with the requirements for processors in sections 33-24-05-650 through 33-24-05-659.

2. Transporters may conduct incidental processing operations that occur in the normal course of used oil transportation (for example, settling and water

separation), but that are not designed to produce (or make more amenable for production of) used oil derived products unless they also comply with the processor requirements in sections 33-24-05-650 through 33-24-05-659.

3. Transporters of used oil that is removed from oil bearing electrical transformers and turbines and filtered by the transporter or at a transfer facility prior to being returned to its original use are not subject to the processor requirements of sections 33-24-05-650 through 33-24-05-659.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-642. Notification.

1. Identification numbers. Used oil transporters who have not previously complied with the notification requirements of Resource Conservation and Recovery Act section 3010 must comply with these requirements and obtain an environmental protection agency identification number.

2. Mechanics of notification. A used oil transporter who has not received an environmental protection ~~agency~~ agency/state identification number may obtain one by notifying the department of their used oil activity by submitting either:

   a. A completed environmental protection agency form 8700-12 ~~(to obtain ordering information for environmental protection agency form 8700-12 call the Resource Conservation and Recovery Act superfund hotline at 1-800-424-9346 or 703-920-9810)~~; or

   b. A letter requesting an environmental protection ~~agency~~ agency/state identification number.

      ~~Call the Resource Conservation and Recovery Act superfund hotline to determine where to send a letter requesting an environmental protection agency identification number.~~ The letter should include the following information:

      (1) Transporter company name;

      (2) Owner of the transporter company;

      (3) Mailing address for the transporter;

      (4) Name and telephone number for the transporter point of contact;

      (5) Type of transport activity (~~i.e.,~~ for example, transport only, transport and transfer facility, transfer facility only);

      (6) Location of all transfer facilities at which used oil is stored;

      (7) Name and telephone number for a contact at each transfer facility.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-643. Used oil transportation.

1. Deliveries. A used oil transporter shall deliver all used oil received to:

   a. Another used oil transporter, provided that the transporter has obtained an enviroinmental protection agency identification number;

   b. A used oil processing facility who has obtained an environmental protection agency identification number;

   c. An off-specification used oil burner facility who has obtained an environmental protection agency identification number; or

   d. An on-specification used oil burner facility.

2. Department of transportation requirements. Used oil transporters shall comply with all applicable requirements under the United States department of transportation regulations in 49 CFR parts 171 through 180. Persons transporting used oil that meets the definition of a hazardous material in 49 CFR 171.8 shall comply with all applicable regulations in 49 CFR parts 171 through 180.

3. Used oil discharges.

   a. In the event of a discharge of used oil during transportation, the transporter must take appropriate immediate action to protect human health and the environment (for example, notify local authorities, dike the discharge area).

   b. If a discharge of used oil occurs during transportation and an official (state or local government or a federal agency) acting within the scope of official responsibilities determines that immediate removal of the used oil is necessary to protect human health or the environment, that official may authorize the removal of the used oil by transporters who do not have enviroinmental protection agency identification numbers.

   c. An air, rail, highway, or water transporter who has discharged used oil must:

      (1) Give notice, if required by 49 CFR 171.15 to the national response center (800-424-8802 or 202-426-2675); and

      (2) Report in writing as required by 49 CFR 171.16 to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation, Washington, D.C. 20590.

   d. A water transporter who has discharged used oil shall give notice as required by 33 CFR 153.203.

e. A transporter shall clean up any used oil discharged that occurs during transportation or take such action as may be required or approved by federal, state, or local officials so that the used oil discharge no longer presents a hazard to human health or the environment.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-644. Rebuttable presumption for used oil.

1. To ensure that used oil is not a hazardous waste under the rebuttable presumption of paragraph 2 of subdivision a of subsection 2 of section 33-24-05-610, the used oil transporter shall determine whether the total halogen content of used oil being transported or stored at a transfer facility is above or below one thousand parts per million.

2. The transporter shall make this determination by:

   a. Testing the used oil; or

   b. Applying knowledge of the halogen content of the used oil in light of the materials or processes used.

3. If the used oil contains greater than or equal to one thousand parts per million total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in sections 33-24-02-15 through 33-24-02-19. The owner or operator may rebut the presumption by demonstrating that the used oil does not contain hazardous waste (for example, by using an analytical method from SW-846, edition III, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix V of chapter 33-24-02). Environmental protection agency publication SW-846, third edition, is available ~~for the cost of one hundred ten dollars~~ from the Government Printing Office, Superintendent Of Documents, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, 202-783-3238 (document number 955-001-00000-1).

   a. The rebuttable presumption does not apply to metalworking oils or fluids containing chlorinated paraffins, if they are processed, through a tolling arrangement as described in subsection 3 of section 33-24-05-624, to reclaim metalworking oils or fluids. The presumption does apply to metalworking oils or fluids if such oils or fluids are recycled in any other manner, or disposed.

   b. The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units if the chlorofluorocarbons are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with chlorofluorocarbons that have been mixed with used oil from sources other than refrigeration units.

4. Record retention. Records of analyses conducted or information used to comply with subsections 1, 2, and 3 must be maintained by the transporter for at

least three years.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-645. Used oil storage at transfer facilities. Used oil transporters are subject to all applicable spill prevention, control, and countermeasures [40 CFR part 112] in addition to the requirements of sections 33-24-05-640 through 33-24-05-649. Used oil ~~generators~~ transporters are also subject to the underground storage tank (chapter 33-24-08) standards for used oil stored in underground tanks whether or not the used oil exhibits any characteristics of hazardous waste, in addition to the requirements of sections 33-24-05-640 through 33-24-05-649.

1. Applicability. This section applies to used oil transfer facilities. Used oil transfer facilities are transportation-related facilities including loading docks, parking areas, storage areas, and other areas where shipments of used oil are held for more than twenty-four hours during the normal course of transportation and not longer than thirty-five days. Transfer facilities that store used oil for more than thirty-five days are subject to regulation under sections 33-24-05-650 through 33-24-05-659.

2. Storage units. Owners or operators of used oil transfer facilities may not store used oil in units other than tanks or containers subject to regulation under sections 33-24-05-89 through 33-24-05-102, sections 33-24-05-103 through 33-24-05-114, except subsection 3 of section 33-24-05-110 and section 33-24-05-113.

3. Condition of units. Containers and aboveground tanks used to store used oil at transfer facilities must be:

   a. In good condition (no severe rusting, apparent structural defects or deterioration); and

   b. Not leaking (no visible leaks).

4. Secondary containment for containers. Containers used to store used oil at transfer facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls;

      (2) A floor. The floor must cover the entire area within the dikes, berms, or retaining walls; or

      (3) An equivalent secondary containment system.

   b. The entire containment system, including walls and floors, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

5. Secondary containment for existing aboveground tanks. Existing aboveground tanks used to store used oil at transfer facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls; and

      (2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall except areas where existing portions of the tank meet the ground; or

      (3) An equivalent secondary containment system.

   b. The entire containment system, including walls and floors, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

6. Secondary containment for new aboveground tanks. New aboveground tanks used to store used oil at transfer facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls; and

      (2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall; or

      (3) An equivalent secondary containment system.

   b. The entire containment system, including walls and floors, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

7. Labels.

   a. Containers and aboveground tanks used to store used oil at transfer facilities must be labeled or marked clearly with the words "Used Oil".

   b. Fill pipes used to transfer used oil into underground storage tanks at transfer facilities must be labeled or marked clearly with the words "Used Oil".

8. Response to releases. Upon detection of a release of used oil to the environment not subject to the requirements of chapter 33-24-08 which has occurred after the effective date of the authorized used oil program for North Dakota in which the release is located, the owner or operator of a transfer facility must perform the following cleanup steps:

   a. Stop the release;

b. Contain the released used oil;

c. Clean up and manage properly the released used oil and other materials; and

d. If necessary, repair or replace any leaking used oil storage containers or tanks prior to returning them to service.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-646. Tracking.

1. Acceptance. Used oil transporters must keep a record of each used oil shipment accepted for transport. Records for each shipment must include:

   a. The name and address of the generator, transporter, or processor who provided the used oil for transport;

   b. The environmental protection agency identification number (if applicable) of the generator, transporter, or processor who provided the used oil for transport;

   c. The quantity of used oil accepted;

   d. The date of acceptance; and

   e. The signature, dated upon receipt of the used oil, of a representative of the generator, transporter, or processor who provided the used oil for transport, except for intermediate rail transporters.

2. Deliveries. Used oil transporters must keep a record of each shipment of used oil that is delivered to another used oil transporter, or to a used oil burner, processor, or disposal facility. Records of each delivery must include:

   a. The name and address of the receiving facility or transporter;

   b. The environmental protection agency identification number of the receiving facility or transporter;

   c. The quantity of used oil delivered;

   d. The date of delivery; and

   e. The signature, dated upon receipt of the used oil, of a representative of the receiving facility or transporter, except for intermediate rail transporters.

3. Exports of used oil. Used oil transporters must maintain the records described in subdivisions a through d of subsection 2 for each shipment of used oil exported to any foreign country.

4. Record retention. The records described in subsections 1, 2, and 3 must be maintained for at least three years.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-647. Management of residues. Transporters who generate residues from the storage or transport of used oil must manage the residues as specified in subsection 5 of section 33-24-05-610.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-648. [Reserved].

33-24-05-649. [Reserved].

33-24-05-650. Applicability of standards for used oil processors.

1. The requirements of sections 33-24-05-650 through 33-24-05-659 apply to owners and operators of facilities that process used oil. Processing means chemical or physical operations designed to produce from used oil, or to make used oil more amenable for production of, fuel oils, lubricants, or other used oil-derived products. Processing includes: blending used oil with virgin petroleum products, blending used oils to meet the fuel specification, filtration, simple distillation, chemical or physical separation, and re-refining. The requirements of sections 33-24-05-650 through 33-24-05-659 do not apply to:

   a. Transporters who conduct incidental processing operations that occur during the normal course of transportation as provided in section 33-24-05-641; or

   b. Burners who conduct incidental processing operations that occur during the normal course of used oil management prior to burning as provided in subsection 2 of section 33-24-05-661.

2. Other applicable provisions. Used oil processors who conduct the following activities are also subject to the requirements of other applicable provisions of sections 33-24-05-600 through 33-24-05-689 as indicated in subdivisions a through e of subsection 2.

   a. Processors who generate used oil must also comply with sections 33-24-05-620 through 33-24-05-629;

   b. Processors who transport used oil must also comply with sections 33-24-05-640 through 33-24-05-649;

   c. Except as provided in paragraphs 1 and 3 of subdivision c of subsection 2, processors who burn off-specification used oil for energy recovery

must also comply with sections 33-24-05-660 through 33-24-05-669. Processors burning used oil for energy recovery under the following conditions are not subject to sections 33-24-05-660 through 33-24-05-669:

(1) The used oil is burned in an onsite space heater that meets the requirements of section 33-24-05-623; or

(2) The used oil is burned for purposes of processing used oil, which is considered burning incidentally to used oil processing;

d. Processors who direct shipments of off-specification used oil from their facility to a used oil burner or first claim that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in section 33-24-05-611 must also comply with sections 33-24-05-670 through 33-24-05-679; and

e. Processors who dispose of used oil also must comply with the applicable sections 33-24-05-680 through 33-24-05-689.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-651. Notification.

1. Identification numbers. Used oil processors who have not previously complied with the notification requirements of Resource Conservation and Recovery Act section 3010 must comply with these requirements and obtain an environmental protection agency identification number.

2. Mechanics of notification. A used oil processor who has not received an environmental protection agency identification number may obtain one by notifying the department of their used oil activity by submitting either:

a. A completed environmental protection agency form 8700-12 (to obtain environmental protection agency form 8700-12 call the Resource Conservation and Recovery Act superfund hotline at 1-800-424-9346 or 703-920-9810); or

b. A letter requesting an environmental protection agency identification number.

~~Call the Resource Conservation and Recovery Act superfund hotline to determine where to send a letter requesting an environmental protection agency identification number.~~ The letter should include the following information:

(1) Processor company name;

(2) Owner of the processor company;

(3) Mailing address for the processor ~~or re-refiner~~;

(4) Name and telephone number for the processor ~~or re-refiner~~ point of contact;

(5) Type of used oil activity; and

(6) Location of the processor facility.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-652. General facility standards.

1. Preparedness and prevention. Owners and operators of used oil processors facilities shall comply with the following requirements:

   a. Maintenance and operation of facility. Facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of used oil to air, soil, or surface water which could threaten human health or the environment.

   b. Required equipment. All facilities must be equipped with the following, unless none of the hazards posed by used oil handled at the facility could require a particular kind of equipment specified in paragraphs 1 through 4 of subdivision b of subsection 1:

      (1) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;

      (2) A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams;

      (3) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and

      (4) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.

   c. Testing and maintenance of equipment. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.

   d. Access to communications or alarm system.

      (1) When used oil is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access

to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, unless such a device is not required in subdivision b of subsection 1.

(2) If there is only one employee on the premises while the facility is operating, the employee must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, unless such a device is not required in subdivision b of subsection 1.

e. Required aisle space. The owner or operator shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless aisle space is not needed for any of these purposes.

f. Arrangements with local authorities.

(1) The owner or operator must attempt to make the following arrangements, as appropriate for the type of used oil handled at the facility and the potential need for the services of these organizations:

(a) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of used oil handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes;

(b) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(c) Agreements with state emergency response teams, emergency response contractors, and equipment suppliers; and

(d) Arrangements to familiarize local hospitals with the properties of used oil handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(2) Where state or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

2. Contingency plan and emergency procedures. Owners and operators of used oil processor facilities must comply with the following requirements:

a. Purpose and implementation of contingency plan.

(1) Each owner or operator must have a contingency plan for the facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or nonsudden release of used oil to air, soil, or surface water.

(2) The provisions of the plan must be carried out immediately when there is a fire, explosion, or release of used oil which could threaten human health or the environment.

b. Content of contingency plan.

(1) The contingency plan must describe the actions facility personnel must take to comply with subdivisions a and f of subsection 2 in response to fires, explosions, or any unplanned sudden or nonsudden release of used oil to air, soil, or surface water at the facility.

(2) If the owner or operator has already prepared a spill prevention, control, and countermeasures (SPCC) plan in accordance with 40 CFR part 112 of chapter I, or 40 CFR part 1510 of chapter V, or some other emergency or contingency plan, the owner or operator need only amend that plan to incorporate used oil management provisions that are sufficient to comply with the requirements of sections 33-24-05-600 through 33-24-05-689.

(3) The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services, pursuant to subdivision f of subsection 1.

(4) The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see subdivision e of subsection 2), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates.

(5) The plan must include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.

(6) The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signals to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of used oil or fires).

c. Copies of contingency plan. A copy of the contingency plan and all revisions to the plan must be:

(1) Maintained at the facility; and

(2) Submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.

d. Amendment of contingency plan. The contingency plan must be reviewed, and immediately amended, if necessary, when:

(1) Applicable regulations are revised;

(2) The plan fails in an emergency;

(3) The facility changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of used oil, or changes the response necessary in an emergency;

(4) The list of emergency coordinators changes; or

(5) The list of emergency equipment changes.

e. Emergency coordinator. At all times, there must be at least one employee either on the facility premises or on call (~~i.e.,~~ for example, available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristic of used oil handled, the location of all records within the facility, and facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

Guidance: The emergency coordinator's responsibilities are more fully spelled out in subdivision f of subsection 2. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of used oil handled by the facility, and type and complexity of the facility.

f. Emergency procedures.

(1) When there is an imminent or actual emergency situation, the emergency coordinator (or the designee when the emergency coordinator is on call) must immediately:

(a) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and

(b) Notify appropriate state or local agencies with designated response roles if their help is needed.

(2) When there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and a real extent of any released materials. The emergency

coordinator may do this by observation or review of facility records of manifests and, if necessary, by chemical analysts.

(3) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (for example, the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water runoffs from water of chemical agents used to control fire and heat-induced explosions).

(4) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, the emergency coordinator must report these findings as follows:

(a) If the emergency coordinator assessment indicated that evacuation of local areas may be advisable, the emergency coordinator must immediately notify appropriate local authorities. The emergency coordinator must be available to help appropriate officials decide whether local areas should be evacuated; and

(b) The emergency coordinator must immediately notify either the government official designated as the onscene coordinator for the geographical area (in the applicable regional contingency plan under part 1510 of the 40 CFR), or the national response center (using their twenty-four-hour toll free number 800 424-8802). The report must include:

[1] Name and telephone number of reporter;

[2] Name and address of facility;

[3] Time and type of incident (~~i.e.,~~ for example, release, fire);

[4] Name and quantity of materials involved, to the extent known;

[5] The extent of injuries, if any; and

[6] The possible hazards to human health, or the environment, outside the facility.

(5) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other used oil or hazardous waste at the facility. These measures must include, where applicable, stopping processes and operation, collecting and containing released used oil, and removing or isolating containers.

(6) If the facility stops operation in response to a fire, explosion,

or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

(7) Immediately after an emergency, the emergency coordinator must provide for recycling, storing, or disposing of recovered used oil, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

(8) The emergency coordinator must ensure that, in the affected areas of the facility:

(a) No waste or used oil that may be incompatible with the released material is recycled, treated, stored, or disposed of until cleanup procedures are completed; and

(b) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

(c) The owner or operator must notify the department, and appropriate state and local authorities that the facility is in compliance with subparagraphs a and b of paragraph 8 of subdivison f of subsection 2 before operations are resumed in the affected areas of the facility.

(9) The owner or operator must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within fifteen days after the incident, the owner or operator must submit a written report on the incident to the department. The report must include:

(a) Name, address, and telephone number of the owner or operator;

(b) Name, address, and telephone number of the facility;

(c) Date, time, and type of incident (~~i.e.,~~ for example, fire, explosion);

(d) Name and quantity of materials involved;

(e) The extent of injuries, if any;

(f) An assessment of actual or potential hazards to human health or the environment, where this is applicable;

(g) Estimated quantity and disposition of recovered material that resulted from the incident.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-653. Rebuttable presumption for used oil.

1. To ensure that used oil managed at a processing facility is not hazardous waste under the rebuttable presumption of paragraph 2 of subdivision a of subsection 2 of section 33-24-05-610, the owner or operator of a used oil processing facility must determine whether the total halogen content of used oil managed at the facility is above or below one thousand parts per million.

2. The owner or operator must make this determination by:

   a. Testing the used oil; or

   b. Applying knowledge of the halogen content of the used oil in light of the materials or processes used.

3. If the used oil contains greater than or equal to one thousand parts per million total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in sections 33-24-02-15 through 33-24-02-19. The owner or operator may rebut the presumption by demonstrating that the used oil does not contain hazardous waste (for example, by using an analytical method from SW-846, edition III, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix V of chapter 33-24-02). ~~Environmental protection agency publication SW-846, third edition, is available for the cost of one hundred ten dollars from the Government Printing Office, Superintendent Of Documents, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, 202-783-3238 (document number 955-001-00000-1).~~

   a. The rebuttable presumption does not apply to metalworking oils or fluids containing chlorinated paraffins, if they are processed, through a tolling agreement, to reclaim metalworking oils or fluids. The presumption does apply to metalworking oils or fluids if such oils or fluids are recycled in any other manner, or disposed.

   b. The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where the chlorofluorocarbons are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with chlorofluorocarbons that have been mixed with used oil from sources other than refrigeration units.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-654. Used oil management. Used oil processors are subject to all applicable spill prevention, control and countermeasures [40 CFR part 112] in addition to the requirements of this subpart. Used oil ~~generators~~ processors are also subject to the underground storage tank (chapter 33-24-08) standards for used oil stored in underground tanks whether or not the used oil exhibits any characteristics of hazardous waste, in addition to the requirements of sections 33-24-05-650 through 33-24-05-659.

1. Management units. Used oil processors may not store used oil in units other

than tanks or containers subject to regulation under sections 33-24-05-01 through 33-24-05-190, sections 33-24-05-300 through 33-24-05-624, or subsection 5 of section 33-24-06-16.

2. Condition of units. Containers and aboveground tanks used to store or process used oil at processing facilities must be:

   a. In good condition (no severe rusting, apparent structural defects, or deterioration); and

   b. Not leaking (no visible leaks).

3. Secondary containment for containers. Containers used to store or process used oil at processing facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls; and

      (2) A floor. The floor must cover the entire area within the dike, berm, or retaining walls; or

      (3) An equivalent secondary containment system.

   b. The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

4. Secondary containment for existing aboveground tanks. Existing aboveground tanks used to store or process used oil at processing facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls; and

      (2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall except areas where existing portions of the tank meet the ground; or

      (3) An equivalent secondary containment system.

   b. The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

5. Secondary containment for new aboveground tanks. New aboveground tanks used to store or process used oil at processing facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

(1) Dikes, berms, or retaining walls; and

(2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall; or

(3) An equivalent secondary containment system.

b. The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

6. Labels.

a. Containers and aboveground tanks used to store or process used oil at processing facilities must be labeled or marked clearly with the words "Used Oil".

b. Fill pipes used to transfer used oil into underground storage tanks at processing facilities must be labeled or marked clearly with the words "Used Oil".

7. Response to releases. Upon detection of a release of used oil to the environment not subject to the requirements of chapter 33-24-08, which has occurred after the effective date of the authorized used oil program for the state in which the release is located, an owner or operator must perform the following cleanup steps:

a. Stop the release;

b. Contain the released used oil;

c. Clean up and manage properly the released used oil and other materials; and

d. If necessary, repair or replace any leaking used oil storage containers or tanks prior to returning them to service.

8. Closure.

a. Aboveground tanks. Owners and operators who store or process used oil in aboveground tanks must comply with the following requirements:

(1) At closure of a tank system, the owner or operator must remove or decontaminate used oil residues in tanks, contaminated containment system components, contaminated soils, and structures and equipment contaminated with used oil, and manage them as hazardous waste, unless the materials are not hazardous waste under this chapter.

(2) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in paragraph 1, then the owner or operator must close the tank system and perform postclosure care in accordance with the closure and postclosure care requirements that apply to hazardous waste

landfills (section 33-24-05-180).

b. Containers. Owners and operators who store used oil in containers must comply with the following requirements:

(1) At closure, containers holding used oils or residues of used oil must be removed from the site;

(2) The owner or operator must remove or decontaminate used oil residues, contaminated containment system components, contaminated soils, and structures and equipment contaminated with used oil, and manage them as hazardous waste, unless the materials are not hazardous waste under chapter 33-24-02.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-655. Analysis plan. Owners or operators of used oil processing facilities must develop and follow a written analysis plan describing the procedures that will be used to comply with the analysis requirements of section 33-24-05-653 and, if applicable, section 33-24-05-672. The owner or operator must keep the plan at the facility.

1. Rebuttable presumption for used oil in section 33-24-05-653. At a minimum, the plan must specify the following:

a. Whether sample analyses or knowledge of the halogen content of the used oil will be used to make this determination.

b. If sample analyses are used to make this determination:

(1) The sampling method used to obtain representative samples to be analyzed. A representative sample may be obtained using either:

(a) One of the sampling methods in appendix I chapter 33-24-02; or

(b) A method shown to be equivalent under sections 33-24-01-06 and 33-24-01-07;

(2) The frequency of sampling to be performed, and whether the analysis will be performed onsite or offsite; and

(3) The methods used to analyze used oil for the parameters specified in section 33-24-05-653; and

c. The type of information that will be used to determine the halogen content of the used oil.

2. On-specification used oil fuel in section 33-24-05-672. At a minimum, the plan must specify the following if section 33-24-05-672 is applicable:

a. Whether sample analyses or other information will be used to make this

determination;

b. If sample analyses are used to make this determination:

(1) The sampling method used to obtain representative samples to be analyzed. A representative sample may be obtained using either:

(a) One of the sampling methods in appendix I of chapter 33-24-02; or

(b) A method shown to be equivalent under sections 33-24-01-06 and 33-24-01-07;

(2) Whether used oil will be sampled and analyzed prior to or after any processing;

(3) The frequency of sampling to be performed, and whether the analysis will be performed onsite or offsite; and

(4) The methods used to analyze used oil for the parameters specified in section 33-24-05-672; and

c. The type of information that will be used to make the on-specification used oil fuel determination.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-656. Tracking.

1. Acceptance. Used oil processors must keep a record of each used oil shipment accepted for processing. These records may take the form of a log, invoice, manifest, bill of lading, or other shipping documents. Records for each shipment must include the following information:

a. The name and address of the transporter who delivered the used oil to the processor;

b. The name and address of the generator or from whom the used oil was sent for processing;

c. The environmental protection agency identification number of the transporter who delivered the used oil to the processor;

d. The environmental protection agency identification number (if applicable) of the generator or processor from whom the used oil was sent for processing;

e. The quantity of used oil accepted; and

f. The date of acceptance.

2. Delivery. Used oil processor must keep a record of each shipment of used oil that is shipped to a used oil burner, processor, or disposal facility. These records may take the form of a log, invoice, manifest, bill of lading, or other shipping documents. Records for each shipment must include the following information:

   a. The name and address of the transporter who delivers the used oil to the burner, processor, or disposal facility;

   b. The name and address of the burner, processor, or disposal facility that will receive the used oil;

   c. The environmental protection agency identification number of the transporter who delivers the used oil to the burner, processor, or disposal facility;

   d. The environmental protection agency identification number of the burner, processor, or disposal facility that will receive the used oil;

   e. The quantity of used oil shipped; and

   f. The date of shipment.

3. Record retention. The records described in subsections 1 and 2 must be maintained for at least three years.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03 23-20.3-04

33-24-05-657. Operating record and reporting.

1. Operating record.

   a. The owner or operator must keep a written operating record at the facility.

   b. The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility;

      (1) Records and results of used oil analyses performed as described in the analysis plan required under section 33-24-05-655; and

      (2) Summary reports and details of all incidents that require implementation of the contingency plan as specified in subsection 2 of section 33-24-05-652.

2. Reporting. A used oil processor must report to the department, in the form of a letter, on a biennial basis (by March first of each even-numbered year), the following information concerning used oil activities during the previous calendar year;

   a. The environmental protection agency identification number, name, and

address of the processor;

b. The calendar year covered by the report; and

c. The quantities of used oil accepted for processing and the manner in which the used oil is processed, including the specific processes employed.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-658. Offsite shipments of used oil. Used oil processors who initiate shipments of used oil offsite must ship the used oil using a used oil transporter who has obtained an environmental protection agency identification number.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-659. Management of residues. Owners and operators who generate residues from the storage or processing of used oil must manage the residues as specified in subsection 5 of section 33-24-05-610.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-660. Applicability of standards for used oil burners who burn off-specification used oil for energy recovery.

1. General. The requirements of sections 33-24-05-660 through 33-24-05-669 apply to used oil burners except as specified in subdivision a and b. A used oil burner is a facility where used oil not meeting the specification requirements in section 33-24-05-611 is burned for energy recovery in devices identified in subsection a of section 33-24-05-661. Facilities burning used oil for energy recovery under the following conditions are not subject to sections 33-24-05-660 through 33-24-05-669:

   a. The used oil is burned by the generator in an onsite space heater under the provisions of section 33-24-05-623; or

   b. The used oil is burned by a processor for purposes of processing used oil, which is considered burning incidentally to used oil processing.

2. Other applicable provisions. Used oil burners who conduct the following activities are also subject to the requirements of other applicable provisions of sections 33-24-05-600 through 33-24-05-689 as indicated below.

   a. Burners who generate used oil must also comply with sections 33-24-05-620 through 33-24-05-629;

b. Burners who transport used oil must also comply with sections 33-24-05-640 through 33-24-05-649;

c. Except as provided in subsection 2 of section 33-24-05-661, burners who process or re-refine used oil must also comply with sections 33-24-05-650 through 33-24-05-659;

d. Burners who direct shipments of off-specification used oil from their facility to a used oil burner or first claim that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in section 33-24-05-611 must also comply with sections 33-24-05-670 through 33-24-05-679; and

e. Burners who dispose of used oil must comply with sections 33-24-05-680 through 33-24-05-689.

3. Specification fuel. Sections 33-24-05-660 through 33-24-05-669 do not apply to persons burning used oil that meets the used oil fuel specification of section 33-24-05-611, provided that the burner complies with the requirements of sections 33-24-05-670 through 33-24-05-679.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-661. Restrictions on burning.

1. Off-specification used oil fuel may be burned for energy recovery in only the following devices:

   a. Industrial furnaces identified in section 33-24-01-04;

   b. Boilers, as defined in section 33-24-01-04, which are identified as follows:

      (1) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes;

      (2) Utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale; or

      (3) Used oil-fired space heaters provided that the burner meets the provisions of section 33-24-05-623; or

   c. Hazardous waste incinerators subject to regulation under sections 33-24-05-144 through 33-24-05-159.

2. Used oil burners.

   a. With the following exception, used oil burners may not process used oil unless they also comply with the requirements of sections 33-24-05-650

through 33-24-05-659.

b. Used oil burners may aggregate off-specification used oil with virgin oil or on-specification used oil for purposes of burning, but may not aggregate for purposes of producing on-specification used oil.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-662. Notification.

1. Identification numbers. Used oil burners who have not previously complied with the notification requirements of Resource Conservation and Recovery Act section 3010 must comply with these requirements and obtain an environmental protection agency identification number.

2. Mechanics of notification. A used oil burner who has not received an environmental protection agency identification number may obtain one by notifying the department of the used oil burner's used oil activity by submitting either:

   a. A completed environmental protection agency form 8700-12 ~~(to obtain environmental protection agency form 8700-12 call the Resource Conservation and Recovery Act superfund hotline at 1-800-424-9346 or 703-920-9810)~~; or

   b. A letter requesting an environmental protection agency identification number. ~~Call the department to determine where to send a letter requesting an environmental protection agency identification number.~~ The letter should include the following information:

      (1) Burner company name;

      (2) Owner of the burner company;

      (3) Mailing address for the burner;

      (4) Name and telephone number for the burner point of contact;

      (5) Type of used oil activity; and

      (6) Location of the burner facility.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-663. Rebuttable presumption for used oil.

1. To ensure that used oil managed at a used oil burner facility is not hazardous waste under the rebuttable presumption of paragraph 2 of subdivision a of

subsection 2 of section 33-24-05-610, a used oil burner must determine whether the total halogen content of used oil managed at the facility is above or below one thousand parts per million.

2. The used oil burner must determine if the used oil contains above or below one thousand parts per million total halogens by:

   a. Testing the used oil;

   b. Applying knowledge of the halogen content of the used oil in light of the materials or processes used; or

   c. If the used oil has been received from a processor subject to regulation under sections 33-24-05-650 through 33-24-05-659, using information provided by the processor.

3. If the used oil contains greater than or equal to one thousand parts per million total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in sections 33-24-02-15 through 33-24-02-19. The owner or operator may rebut the presumption by demonstrating that the used oil does not contain hazardous waste (for example, by using an analytical method form SW-846, edition III, to show that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix V of chapter 33-24-02). ~~Environmental protection agency publication SW-846, third edition, is available for the cost of one hundred ten dollars from the Government Printing Office, Superintendent Of Documents, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954. 202-783-3238 (document number 955-001-00000-1).~~

   a. The rebuttable presumption does not apply to metalworking oils or fluids containing chlorinated paraffins, if they are processed, through a tolling arrangement as described in subsection 3 of section 33-24-05-624, to reclaim metalworking oils or fluids. The presumption does apply to metalworking oils or fluids if such oils or fluids are recycled in any other manner, or disposed.

   b. The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where the chlorofluorocarbons are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with chlorofluorocarbons that have been mixed with used oil from sources other than refrigeration units.

4. Record retention. Records of analyses conducted or information used to comply with subsections 1, 2, and 3 must be maintained by the burner for at least three years.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-664. Used oil storage. Used oil burners are subject to all applicable spill prevention, control, and countermeasures [40 CFR part 112] in addition to the

requirements of sections 33-24-05-660 through 33-24-05-669. Used oil ~~generators~~ burners are also subject to the underground storage tank (chapter 33-24-08) standards for used oil stored in underground tanks whether or not the used oil exhibits any characteristics of hazardous waste, in addition to the requirements of sections 33-24-05-660 through 33-24-05-669.

1. Storage units. Used oil burners may not store used oil in units other than tanks or containers subject to regulation under sections 33-24-05-01 through 33-24-05-190, sections 33-24-05-300 through 33-24-05-624, or subsection 5 of section 33-24-06-16.

2. Condition of units. Containers and aboveground tanks used to store oil at burner facilities must be:

   a. In good condition (no severe rusting, apparent structural defects, or deterioration); and

   b. Not leaking (no visible leaks).

3. Secondary containment for containers. Containers used to store used oil at burner facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls; and

      (2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall.

   b. The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

4. Secondary containment for existing aboveground tanks. Existing aboveground tanks used to store used oil at burner facilities must be equipped with a secondary containment system.

   a. The secondary containment system must consist of, at a minimum:

      (1) Dikes, berms, or retaining walls; and

      (2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall except areas where existing portions of the tank meet the ground; or

      (3) An equivalent secondary containment system.

   b. The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

5. Secondary containment for existing aboveground tanks. New aboveground tanks

used to store used oil at burner facilities must be equipped with a secondary containment system.

a. The secondary containment system must consist of, at a minimum:

(1) Dikes, berms, or retaining walls; and

(2) A floor. The floor must cover the entire area within the dike, berm, or retaining wall; or

(3) An equivalent secondary containment system.

b. The entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, ground water, or surface water.

6. Labels.

a. Containers and aboveground tanks used to store used oil at burner facilities must be labeled or marked clearly with the words "Used Oil".

b. Fill pipes used to transfer used oil into underground storage tanks at burner facilities must be labeled or marked clearly with the words "Used Oil".

7. Response to releases. Upon detection of a release of used oil to the environment not subject to the requirements of chapter 33-24-08 which has occurred after the effective date of the authorized used oil program for the state in which the release is located, a burner must perform the following cleanup steps:

a. Stop the release;

b. Contain the released used oil;

c. Clean up and manage properly the released used oil and other materials; and

d. If necessary, repair or replace any leaking used oil storage containers or tanks prior to returning them to service.

History: Effective January 1, 1994; amended effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-665. Tracking.

1. Acceptance. Used oil burners must keep a record of each used oil shipment accepted for burning. These records may take the form of a log, invoice, manifest, bill of lading, or other shipping documents. Records for each shipment must include the following information:

a. The name and address of the transporter who delivered the used oil to the burner;

b. The name and address of the generator or processor from whom the used oil was sent to the burner;

c. The environmental protection agency identification number of the transporter who delivered the used oil to the burner;

d. The environmental protection agency identification number (if applicable) of the generator or processor from whom the used oil was sent to the burner;

e. The quantity of used oil accepted; and

f. The date of acceptance.

2. Record retention. The records described in subsection 1 must be maintained for at least three years.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-666. Notices.

1. Certification. Before a burner accepts the first shipment of off-specification used oil fuel from a generator, transporter, or processor or the burner must provide to the generator, transporter, or processor or a one-time written and signed notice certifying that:

   a. The burner has notified the department stating the location and general description of his used oil management activities; and

   b. The burner will burn the used oil only in an industrial furnace or boiler identified in subsection 1 of section 33-24-05-661.

2. Certification retention. The certification described in subsection 1 of this section must be maintained for three years from the date the burner last receives shipment of off-specification used oil from that generator, transporter, or processor.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-667. Management of residues. Burners who generate residues from the storage or burning of used oil must manage the residues as specified in subsection 5 of section 33-24-05-610.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-668. [Reserved]

33-24-05-669. [Reserved]

33-24-05-670. Applicability of standards for used oil fuel marketers.

1. Any person who conducts either of the following activities is subject to the requirements of sections 33-24-05-670 through 33-24-05-679:

   a. Directs a shipment of off-specification used oil from their facility to a used oil burner; or

   b. First claims that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in section 33-24-05-611.

2. The following persons are not marketers subject to sections 33-24-05-670 through 33-24-05-679:

   a. Used oil generators, and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner. However, processors who burn some used oil fuel for purposes of processing are considered to be burning incidentally to processing. Thus, generators and transporters who direct shipments of off-specification used oil to processors who incidently burn used oil are not marketers subject to sections 33-24-05-670 through 33-24-05-679;

   b. Persons who direct shipments of on-specification used oil and who are not the first person to claim the oil meets the used oil fuel specifications of section 33-24-05-611.

3. Any person subject to the requirements of sections 33-24-05-670 through 33-24-05-679 must also comply with one of the following:

   a. Sections 33-24-05-620 through 33-24-05-629 - standards for used oil generators;

   b. Sections 33-24-05-640 through 33-24-05-649 - standards for used oil transporters and transfer facilities;

   c. Sections 33-24-05-650 through 33-24-05-659 - standards for used oil processors; or

   d. Sections 33-24-05-660 through 33-24-05-669 - standards for used oil burners who burn off-specification used oil for energy recovery.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-671. Prohibitions. A used oil fuel marketer may initiate a shipment of off-specification used oil only to a used oil burner who:

1. Has an environmental protection agency identification number; and

2. Burns the used oil in an industrial furnace or boiler identified in subsection 1 of section 33-24-05-661.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-672. On-specification used oil fuel.

1. Analysis of used oil fuel. A generator, transporter, processor, or burner may determine that used oil that is to be burned for energy recovery meets the fuel specifications of section 33-24-05-611 by performing analyses or obtaining copies of analyses or other information documenting that the used oil fuel meets the specifications.

2. Record retention. A generator, transporter, processor, or burner who first claims that used oil that is to be burned for energy recovery meets the specifications for used oil fuel under section 33-24-05-611, must keep copies of analyses of the used oil (or other information used to make the determination) for three years.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-673. Notification.

1. Identification numbers. A used oil fuel marketer subject to the requirements of sections ~~33-24-05-600 through 33-24-05-689~~ 33-24-05-673 through 33-24-05-679 who has not previously complied with the notification requirements of Resource Conservation and Recovery Act section 3010 must comply with these requirements and obtain an environmental protection agency identification number.

2. A marketer who has not received an environmental protection agency identification number may obtain one by notifying the department of their used oil activity by submitting either:

   a. A completed environmental protection agency form 8700-12; or

   b. A letter requesting an environmental protection agency identification number. The letter should include the following information:

      (1) Marketer company name;

      (2) Owner of the marketer;

(3) Mailing address for the marketer;

(4) Name and telephone number for the marketer point of contact; and

(5) Type of used oil activity (~~i.e.,~~ for example, generator directing shipments of off-specification used oil to a burner).

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-674. Tracking.

1. Off-specification used oil delivery. Any used oil marketer who directs a shipment of off-specification used oil to a burner must keep a record of each shipment of used oil to a used oil burner. These records may take the form of a log, invoice, manifest, bill of lading, or other shipping documents. Records for each shipment must include the following information:

   a. The name and address of the transporter who delivers the used oil to the burner;

   b. The name and address of the burner who will receive the used oil;

   c. The environmental protection agency identification number of the transporter who delivers the used oil to the burner;

   d. The environmental protection agency identification number of the burner;

   e. The quantity of used oil shipped; and

   f. The date of shipment.

2. On-specification used oil delivery. A generator, transporter, processor, or burner who first claims that used oil that is to be burned for energy recovery meets the fuel specifications under section 33-24-05-611 must keep a record of each shipment of used oil to an on-specification used oil burner. Records for each shipment must include the following information:

   a. The name and address of the facility receiving the shipment;

   b. The quantity of used oil fuel delivered;

   c. The date of shipment or delivery; and

   d. A cross-reference to the record of used oil analysis or other information used to make the determination that the oil meets the specifications as required under subsection 1 of section 33-24-05-672.

3. Record retention. The records described in subsections 1 and 2 must be maintained for at least three years.

History: Effective January 1, 1994.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-675. Notices.

1. Certification. Before a used oil generator, transporter, or processor directs the first shipment of off-specification used oil fuel to a burner, the generator, transporter, or processor must obtain a one-time written and signed notice from the burner certifying that:

   a. The burner has notified the department stating the location and general description of used oil management activities; and

   b. The burner will burn the off-specification used oil only in an industrial furnace or boiler identified in subsection 1 of section 33-24-05-661.

2. Certification retention. The certification described in subsection 1 must be maintained for three years from the date the last shipment of off-specification used oil is shipped to the burner.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-676. [Reserved]

33-24-05-677. [Reserved]

33-24-05-678. [Reserved]

33-24-05-679. [Reserved]

33-24-05-680. Applicability of standards for disposal of used oil. The requirements of sections 33-24-05-680 through 33-24-05-689 apply to all used oils that cannot be recycled and are therefore being disposed.

History: Effective January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-681. Disposal.

1. Disposal of hazardous used oils. Used oils that are identified as a hazardous waste must be managed in accordance with the hazardous waste management requirements of article 33-24.

2. Disposal of nonhazardous used oils. Used oils that are not hazardous wastes and cannot be recycled under sections 33-24-05-600 through 33-24-05-689 must be disposed in accordance with the requirements of article 33-20.

History: Effective January 1, 1994.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-682. [Reserved]

33-24-05-683. [Reserved]

33-24-05-684. [Reserved]

33-24-05-685. [Reserved]

33-24-05-686. [Reserved]

33-24-05-687. [Reserved]

33-24-05-688. [Reserved]

33-24-05-689. [Reserved]

33-24-05-690. [Reserved]

33-24-05-691. [Reserved]

33-24-05-692. [Reserved]

33-24-05-693. [Reserved]

33-24-05-694. [Reserved]

33-24-05-695. [Reserved]

33-24-05-696. [Reserved]

33-24-05-697. [Reserved]

33-24-05-698. [Reserved]

33-24-05-699. [Reserved]

33-24-05-700. [Reserved]

33-24-05-701. Scope.

1. Sections 33-24-05-701 through 33-24-05-765 establish requirements for managing the following:

   a. Batteries as described in section 33-24-05-702;

   b. Pesticides as described in section 33-24-05-703; and

   c. Mercury containing devices as described in section 33-24-05-704.

2. Sections 33-24-05-701 through 33-24-05-765 provide an alternative set of

management standards in lieu of regulation under chapters 33-24-01 through 33-24-04 and 33-24-06 and sections 33-24-05-01 through 33-24-05-689.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-702. Applicability - batteries.

1. Batteries covered under sections 33-24-05-701 through 33-24-05-765.

   a. The requirements of sections 33-24-05-701 through 33-24-05-765 apply to persons managing batteries, as described in section 33-24-01-04, except as those listed in subsection 2.

   b. Spent lead-acid batteries which are not managed under sections 33-24-05-235 through 33-24-05-249 are subject to management under sections 33-24-05-701 through 33-24-05-765.

2. Batteries not covered under sections 33-24-05-701 through 33-24-05-765. The requirements of sections 33-24-05-701 through 33-24-05-765 do not apply to persons managing the following batteries:

   a. Spent lead-acid batteries that are managed under sections 33-24-05-235 through 33-24-05-249 .

   b. Batteries, as described in section 33-24-01-04, that are not yet wastes under chapter 33-24-01, including those that do not meet the criteria for waste generation in subsection 3.

   c. Batteries, as described in section 33-24-01-04, that are not hazardous waste. A battery is a hazardous waste if it exhibits one or more of the characteristics identified in sections 33-24-02-10 through 33-24-02-14.

3. Generation of waste batteries.

   a. A used battery becomes a waste on the date it is discarded (for example, when sent for reclamation).

   b. An unused battery becomes a waste on the date the handler decides to discard it.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-703. Applicability - pesticides.

1. Pesticides covered under sections 33-24-05-701 through 33-24-05-765. The requirements of sections 33-24-05-701 through 33-24-05-765 apply to persons managing pesticides, as described in section 33-24-01-04, meeting the following conditions, except those listed in subsection 2:

a. Recalled pesticides that are:

(1) Stocks of a suspended and canceled pesticide that are part of a voluntary or mandatory recall under federal Insecticide, Fungicide and Rodenticide Act section 19(b), including, but not limited to those owned by the registrant responsible for conducting the recall; or

(2) Stocks of a suspended or canceled pesticide, or a pesticide that is not in compliance with federal Insecticide, Fungicide and Rodenticide Act, that are part of a voluntary recall by the registrant.

b. Stocks of other unused pesticide products that are collected and managed as part of a waste pesticide collection program.

2. Pesticides not covered under sections 33-24-05-701 through 33-24-05-765. The requirements of sections 33-24-05-701 through 33-24-05-765 do not apply to persons managing the following pesticides:

a. Recalled pesticides described in subdivision a of subsection 1, and unused pesticide products described in subdivision b of subsection 1, that are managed by farmers in compliance with section 33-24-03-40.

b. Pesticides not meeting the conditions set forth in subsection 1. These pesticides must be managed in compliance with the hazardous waste regulations in chapters 33-24-01 through 33-24-04, 33-24-06, and sections 33-24-05-01 through 33-24-05-700;

c. Pesticides that are not wastes under chapter 33-24-02, including those that do not meet the criteria for waste generation in subsection 3 or those that are not wastes as described in subsection 4; and

d. Pesticides that are not hazardous waste. A pesticide is a hazardous waste if it is listed in sections 33-24-02-15 through 33-24-02-19 or if it exhibits one or more of the characteristics identified in sections 33-24-02-10 through 33-24-02-14.

3. When a pesticide becomes a waste.

a. A recalled pesticide described in subdivision a of subsection 1 becomes a waste on the first date on which both of the following conditions apply:

(1) The generator of the recalled pesticide agrees to participate in the recall; and

(2) The person conducting the recall decides to discard the pesticide (for example, burn the pesticide for energy recovery).

b. An unused pesticide product described in subdivision b of subsection 1 becomes a waste on the date the generator decides to discard it.

4. Pesticides that are not wastes. The following pesticides are not wastes:

a. Recalled pesticides described in subdivision a of subsection 1 provided that the person conducting the recall:

(1) Has not made a decision to discard the pesticide (for example, burn for energy recovery). Until such a decision is made, the pesticide does not meet the definition of "solid waste" under section 33-24-02-02; thus the pesticide is not a hazardous waste and is not subject to hazardous waste requirements, including sections 33-24-05-701 through 33-24-05-765. This pesticide remains subject to the requirements of federal Insecticide, Fungicide and Rodenticide Act; or

(2) Has made a decision to use a management option that, under section 33-24-02-02, does not cause the pesticide to be a solid waste (for example, the selected option is use (other than use constituting disposal) or reuse (other than burning for energy recovery) or reclamation). Such a pesticide is not a solid waste and therefore is not a hazardous waste, and is not subject to hazardous waste requirements including sections 33-24-05-701 through 33-24-05-765. This pesticide, including a recalled pesticide that is exported to a foreign destination for use or reuse, remains subject to the requirements of federal Insecticide, Fungicide and Rodenticide Act.

b. Unused pesticide products described in subdivision b of subsection 1, if the generator of the unused pesticide product has not decided to discard them (for example, burn for energy recovery). These pesticides remain subject to the requirements of federal Insecticide, Fungicide and Rodenticide Act.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-704. Applicability - mercury containing devices.

1. Mercury containing devices covered under sections 33-24-05-701 through 33-24-05-765. The requirements of sections 33-24-05-701 through 33-24-05-765 apply to persons managing mercury containing devices, as described in section 33-24-01-04, except as those listed in subsection 2.

2. Mercury containing devices not covered under sections 33-24-05-701 through 33-24-05-765. The requirements of sections 33-24-05-701 through 33-24-05-765 do not apply to persons managing the following mercury containing devices:

a. Mercury containing devices that are not yet wastes under chapter 33-24-02. Subsection 3 describes when mercury containing devices become wastes.

b. Mercury containing devices that are not hazardous waste. A mercury containing device is a hazardous waste if it exhibits one or more of the characteristics identified in sections 33-24-02-10 through 33-24-02-14.

3. Generation of waste mercury containing devices.

a. A used mercury containing device becomes a waste on the date that it is discarded (for example, sent for reclamation).

b. An unused mercury containing device becomes a waste on the date the handler decides to discard it.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-705. Applicability - household and conditionally exempt small quantity generator waste.

1. Persons managing the wastes listed below may, at their option, manage them under the requirements of sections 33-24-05-701 through 33-24-05-765:

   a. Household wastes that are exempt under subdivision a of subsection 2 of section 33-24-02-04 and are also of the same type as the universal wastes defined in section 33-24-01-04; or

   b. Conditionally exempt small quantity generator wastes that are exempt under section 33-24-02-05 and are also of the same type as the universal wastes defined in section 33-24-01-04.

2. Persons who commingle the wastes described in subdivisions a and b of subsection 1 together with universal waste regulated under sections 33-24-05-701 through 33-24-05-765 must manage the commingled waste under the requirements of sections 33-24-05-701 through 33-24-05-765.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-706. Definitions. Terms that are defined in sections 33-24-01-04 and 33-24-02-01 and chapter 33-24-05 have the same meanings when used in sections 33-24-05-701 through 33-24-05-765.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-707. [Reserved]

33-24-05-708. [Reserved]

33-24-05-709. [Reserved]

33-24-05-710. Applicability - handlers of universal waste. Sections 33-24-05-710 through 33-24-05-739 apply to all handlers of universal waste.

History: Effective July 1, 1997.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-711. Prohibitions. A handler of universal waste is:

1. Prohibited from disposing of universal waste; and

2. Prohibited from diluting or treating universal waste, except by responding to releases as provided by section 33-24-05-717; or by managing specific wastes as provided in section 33-24-05-713.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-712. Notification.

1. A handler of universal waste must:

   a. Except as provided in subdivisions b and c, send written notification of universal waste management activities to the department, and receive an environmental protection agency/state identification number.

   b. A handler of universal waste who has already notified the department of the person's hazardous waste management activities and received an environmental protection agency/state identification number is not required to renotify.

   c. A handler of universal waste who manages recalled universal waste pesticides as described in subdivision a of subsection 1 of section 33-24-05-703 and who has sent notification to the environmental protection agency as required by 40 CFR part 165 is not required to notify for those recalled universal waste pesticides.

2. This notification must include:

   a. The universal waste handler's name and mailing address;

   b. The name and business telephone number of the person at the universal waste handler's site who should be contacted regarding universal waste management activities;

   c. The address or physical location of the universal waste management activities;

   d. A list of all types of universal waste managed by the handler (for example, batteries, pesticides, mercury containing devices); and

   e. A statement indicating that the handler is accumulating universal waste and the types of universal waste (for example, batteries, pesticides, mercury containing devices) the handler is accumulating.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-713. Waste management.

1. Universal waste batteries. A handler of universal waste must manage universal waste batteries in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

   a. A handler of universal waste must contain any universal waste battery that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a container. The container must be closed, structurally sound, compatible with the contents of the battery and must lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

   b. A handler of universal waste may conduct the following activities as long as the casing of each individual battery cell is not breached and remains intact and closed (except that cells may be opened to remove electrolyte but must be immediately closed after removal):

      (1) Sorting batteries by type;

      (2) Mixing battery types in one container;

      (3) Discharging batteries so as to remove the electric charge;

      (4) Regenerating used batteries;

      (5) Disassembling batteries or battery packs into individual batteries or cells;

      (6) Removing batteries from consumer products; or

      (7) Removing electrolyte from batteries.

   c. A handler of universal waste who removes electrolyte from batteries, or who generates other solid waste (for example, battery pack materials, discarded consumer products) as a result of the activities listed in subdivision b, must determine whether the electrolyte or other solid waste exhibit one or more of the characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14.

      (1) If the electrolyte or other solid waste exhibits a characteristic of hazardous waste, it is subject to all applicable requirements of chapters 33-24-01 through 33-24-04, 33-24-06 and sections 33-24-05-01 through 33-24-05-700. The handler is considered the generator of the hazardous electrolyte or other hazardous waste and is subject to the requirements of chapter 33-24-03.

      (2) If the electrolyte or other solid waste is not hazardous, the handler may manage the waste in compliance with applicable federal,

state, or local solid waste regulations.

2. Universal waste pesticides. A handler of universal waste must manage universal waste pesticides in a way that prevents releases of any universal waste or component of a universal waste to the environment. The universal waste pesticides must be contained in one or more of the following:

   a. A container that remains closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions;

   b. A container that does not meet the requirements of subdivision a, provided that the unacceptable container is overpacked in a container that does meet the requirements of subdivision a;

   c. A tank that meets the requirements of sections 33-24-05-103 through 33-24-05-114, except subsection 3 of section 33-24-06-110 and sections 33-24-05-113 and 33-24-05-114; or

   d. A transport vehicle or vessel that is closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

3. Universal waste mercury containing devices. A handler of universal waste must manage universal waste mercury containing devices in a way that prevents releases of any universal waste or component of a universal waste to the environment, as follows:

   a. A handler of universal waste must contain any universal waste mercury containing device that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a container. The container must be closed, structurally sound, compatible with the contents of the mercury containing device, and must lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

   b. A handler of universal waste may remove mercury-containing ampules or other reservoirs from universal waste mercury containing devices provided the handler:

      (1) Removes the ampules or other reservoirs in a manner designed to prevent breakage of the ampules or other reservoirs;

      (2) Removes the ampules or other reservoirs only over or in a containment device (for example, a tray or pan sufficient to collect and contain any mercury released from an ampule or other reservoir in case of breakage);

      (3) Ensures that a mercury cleanup system is readily available to immediately transfer any mercury resulting from spills or leaks from broken ampules or other reservoirs, from the containment device to a container that meets the requirements of section 33-24-03-12;

(4) Immediately transfers any mercury resulting from spills or leaks from broken ampules or other reservoirs from the containment device to a container that meets the requirements of section 33-24-03-12;

(5) Ensures that the area in which ampules or other reservoirs are removed is well-ventilated and monitored to ensure compliance with applicable occupational safety and health administration exposure levels for mercury;

(6) Ensures that employees removing ampules or other reservoirs are thoroughly familiar with proper waste mercury handling and emergency procedures, including transfer of mercury from containment devices to appropriate containers;

(7) Stores removed ampules or other reservoirs in closed, nonleaking containers that are in good condition;

(8) Packs removed ampules or other reservoirs in the container with packing materials adequate to prevent breakage during storage, handling, and transportation; and

c. A handler of universal waste who removes mercury containing ampules or other reservoirs from mercury containing devices must:

(1) Determine whether the following exhibit a characteristic of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14:

(a) Mercury or cleanup residues resulting from spills or leaks; and

(b) Other solid waste generated as a result of the removal of mercurycontaining ampules or other reservoirs (for example, remaining mercury containing device units).

(2) If the mercury, residues, or other solid waste exhibits a characteristic of hazardous waste, it must be managed in compliance with all applicable requirements of chapters 33-24-01 through 33-24-04, 33-24-06 and sections 33-24-05-01 through 33-24-05-700. The handler is considered the generator of the mercury, residues, or other solid waste and is subject to the requirements of chapter 33-24-03.

(3) If the mercury, residues, or other solid waste is not hazardous, the handler may manage the waste in any way that is in compliance with applicable federal, state or local solid waste regulations.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-714. Labeling and marking. A handler of universal waste must label or mark the universal waste to identify the type of universal waste as specified below:

1. Universal waste batteries (for example, each battery), or a container in which the batteries are contained, must be labeled or marked clearly with any one of the following phrases: "Universal Waste - Battery(ies)", or "Waste Battery(ies)", or "Used Battery(ies)";

2. A container, (or multiple container package unit), tank, or transport vehicle or vessel in which recalled universal waste pesticides as described in subdivision a of subsection 1 of section 33-24-05-703 are contained must be labeled or marked clearly with:

   a. The label that was on or accompanied the product as sold or distributed; and

   b. The words "Universal Waste - Pesticide(s)" or "Waste - Pesticide(s)";

3. A container, tank, or transport vehicle or vessel in which unused pesticide products as described in subdivision b of subsection 1 of section 33-24-05-703 are contained must be labeled or marked clearly with:

   a. The following:

      (1) The label that was on the product when purchased, if still legible;

      (2) If using the labels described in paragraph 1 is not feasible, the appropriate label as required under department of transportation regulation 49 CFR part 172; or

      (3) If using the labels described in paragraphs 1 and 2 is not feasible, another label prescribed or designated by the waste pesticide collection program administered or recognized by the state; and

   b. The words "Universal Waste - Pesticide(s)" or "Waste - Pesticide(s)".

4. Universal waste mercury containing devices (for example, each mercury containing device) or a container in which mercury containing devices are contained must be labeled or marked clearly with any one of the following phrases: "Universal Waste - Mercury Containing Device(s)", or "Waste Mercury Containing Device(s)", or "Used Mercury Containing Device(s)".

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-04

33-24-05-715. Accumulation time limits.

1. A handler of universal waste may accumulate universal waste for no longer than one year from the date the universal waste is generated, or received from another handler, unless the requirements of subsection 2 are met.

2. A handler of universal waste may accumulate universal waste for longer than one year from the date the universal waste is generated, or received from another handler, if such activity is solely for the purpose of accumulation of such quantities of universal waste as necessary to facilitate proper

recovery, treatment, or disposal. However, the handler bears the burden of proving that such activity is solely for the purpose of accumulation of such quantities of universal waste as necessary to facilitate proper recovery, treatment, or disposal.

3. A handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from the date it becomes a waste or is received. The handler may make this demonstration by:

   a. Placing the universal waste in a container and marking or labeling the container with the earliest date that any universal waste in the container became a waste or was received;

   b. Marking or labeling each individual item of universal waste (for example, each battery or mercury containing device) with the date it became a waste or was received;

   c. Maintaining an inventory system onsite that identifies the date each universal waste became a waste or was received;

   d. Maintaining an inventory system onsite that identifies the earliest date that any universal waste in a group of universal waste items or a group of containers of universal waste became a waste or was received;

   e. Placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste in the area became a waste or was received; or

   f. Any other method which clearly demonstrates the length of time that the universal waste has been accumulated from the date it becomes a waste or is received.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-716. Employee training. All handlers of universal waste shall ensure all employees who handle or have responsibility for managing universal waste are thoroughly familiar with proper waste handling and emergency procedures appropriate for the type or types of universal waste handled at the facility, and relative to their responsibilities during normal facility operations and emergencies.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-717. Response to releases.

1. A handler of universal waste shall immediately contain all releases of universal wastes and other residues from universal wastes.

2. A handler of universal waste shall determine whether any material resulting from the release is hazardous waste, and if so, must manage the hazardous waste in compliance with all applicable requirements of chapters 33-24-01 through 33-24-04, 33-24-06 and sections 33-24-05-01 through 33-24-05-700. The handler is considered the generator of the material resulting from the release, and must manage it in compliance with chapter 33-24-03.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-718. Offsite shipments.

1. A handler of universal waste is prohibited from sending or taking universal waste to a place other than another universal waste handler, a destination facility, or a foreign destination.

2. If a handler of universal waste self-transports universal waste offsite, the handler becomes a universal waste transporter for those self-transportation activities and must comply with the transporter requirements of sections 33-24-05-740 through 33-24-05-749 while transporting the universal waste.

3. If a universal waste being offered for offsite transportation meets the definition of hazardous materials under 49 CFR parts 171 through 180, a handler of universal waste must package, label, mark, and placard the shipment and prepare the proper shipping papers in accordance with applicable department of transportation regulations under 49 CFR parts 172 through 180.

4. Prior to sending a shipment of universal waste to another universal waste handler, the originating handler shall ensure that the receiving handler agrees to receive the shipment.

5. If a handler of universal waste sends a shipment of universal waste to another handler or to a destination facility and the shipment is rejected by the receiving handler or destination facility, the originating handler shall either:

   a. Receive the universal waste back when notified that the shipment has been rejected; or

   b. Agree with the receiving handler on a destination facility to which the shipment will be sent.

6. A handler of universal waste may reject a shipment containing universal waste, or a portion of a shipment containing universal waste that the handler has received from another handler. If a handler rejects a shipment or a portion of a shipment, the receiving handler shall contact the originating handler to notify the originating handler of the rejection and to discuss reshipment of the load. The receiving handler must:

   a. Send the shipment back to the originating handler; or

   b. If agreed to by both the originating and receiving handler, send the

shipment to a destination facility.

7. If a handler of universal waste receives a shipment containing hazardous waste that is not a universal waste, the handler shall immediately notify the department of the illegal shipment, and provide the name, address, and telephone number of the originating shipper. The department will provide instructions for managing the hazardous waste.

8. If a handler of universal waste receives a shipment of nonhazardous, nonuniversal waste, the handler may manage the waste in any way that is in compliance with applicable federal, state, or local waste regulations.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-719. Tracking universal waste shipments. A handler of universal waste must keep the following records.

1. Receipt of shipment. A handler of universal waste shall keep a record of each shipment of universal waste received at the facility. The record may take the form of a log, invoice, manifest, bill of lading or other shipping document. The record for each shipment of universal waste received must include the following information:

   a. The name and address of the originating universal waste handler or foreign shipper from whom the universal waste was sent;

   b. The quantity of each type of universal waste received (for example, batteries, pesticides, mercury containing devices); and

   c. The date of receipt of the shipment of universal waste.

2. Shipments offsite. A handler of universal waste must keep a record of each shipment of universal waste sent from the handler to other facilities. The record may take the form of a log, invoice, manifest, bill of lading, or other shipping document. The record for each shipment of universal waste sent must include the following information:

   a. The name and address of the universal waste handler, destination facility, or foreign destination to whom the universal waste was sent;

   b. The quantity of each type of universal waste sent (for example, batteries, pesticides, mercury containing devices); and

   c. The date the shipment of universal waste left the facility.

3. Record retention.

   a. A handler of universal waste shall retain the records described in subsection 1 for at least three years from the date of receipt of the shipment of universal waste.

b. A handler of universal waste shall retain the records described in subsection 2 for at least three years from the date a shipment of universal waste left the facility.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-720. Exports. A handler of universal waste who sends universal waste to a foreign destination shall:

1. Comply with the requirements applicable to a primary exporter in section 33-24-03-20, subdivisions a through d and f of subsection 1, and subsection 2 of section 33-24-03-23, and section 33-24-03-24;

2. Export such universal waste only upon consent of the receiving country and in conformance with environmental protection agency acknowledgment of consent as defined in sections 33-24-03-17 through 33-24-03-29; and

3. Provide a copy of the environmental protection agency acknowledgment of consent for the shipment to the transporter transporting the shipment for export.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-721. [Reserved]

33-24-05-722. [Reserved]

33-24-05-723. [Reserved]

33-24-05-724. [Reserved]

33-24-05-725. [Reserved]

33-24-05-726. [Reserved]

33-24-05-727. [Reserved]

33-24-05-728. [Reserved]

33-24-05-729. [Reserved]

33-24-05-730. [Reserved]

33-24-05-731. [Reserved]

33-24-05-732. [Reserved]

33-24-05-733. [Reserved]

33-24-05-734. [Reserved]

33-24-05-735. [Reserved]

33-24-05-736. [Reserved]

33-24-05-737. [Reserved]

33-24-05-738. [Reserved]

33-24-05-739. [Reserved]

33-24-05-740. Applicability - universal waste transporters. Sections 33-24-05-740 through 33-24-05-749 apply to all transporters of universal waste.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-741. Prohibitions. A universal waste transporter is:

1. Prohibited from disposing of universal waste; and

2. Prohibited from diluting or treating universal waste, except by responding to releases as provided by section 33-24-05-744.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-742. Waste management.

1. A universal waste transporter shall comply with all applicable United States department of transportation regulations in 49 CFR parts 171 through 180 for transport of any universal waste that meets the definition of hazardous material in 49 CFR 171.8. For purposes of the department of transportation regulations, a material is considered a hazardous waste if it is subject to the hazardous waste manifest requirements specified in chapter 33-24-03. Because universal waste does not require a hazardous waste manifest, it is not considered a hazardous waste under the department of transportation regulations.

2. Some universal waste materials are regulated by the department of transportation as hazardous materials because they meet the criteria for one or more hazard classes specified in 49 CFR 173.2. As universal waste shipments do not require a manifest under chapter 33-24-03, they may not be described by the department of transportation proper shipping name "hazardous waste, (1) or (s), n.o.s.", nor may the hazardous material's proper shipping name be modified by adding the word "waste".

3. All universal waste transporters shall comply with the solid waste

transportation permitting requirements contained in section 33-20-02.1-01.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-05-743. Storage time limits.

1. A universal waste transporter may only store the universal waste at a universal waste transfer facility for ten days or less.

2. If a universal waste transporter stores universal waste for more then ten days, the universal waste transporter becomes a universal waste handler and must comply with the requirements of sections 33-24-05-710 through 33-24-05-739 while storing the universal waste.

3. A universal waste transporter must keep records for each shipment of universal waste transported. The record may take the form of a log, invoice, manifest, bill of lading, or other shipping document. The record for each shipment of universal waste sent must include the following information:

   a. The name and address of the universal waste generator or handler originating the shipment and the subsequent handler, destination facility, or foreign destination to whom the universal waste was sent;

   b. The quantity of each type of universal waste sent (for example, batteries, pesticides, mercury containing devices); and

   c. The date the universal waste transporter accepted the shipment of universal waste for transportation.

4. Record retention. A universal waste transporter shall retain the records described in subsection 3 for at least three years from the date of delivery of the shipment of universal waste to another handler, destination facility, or foreign destination.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-744. Response to releases.

1. A universal waste transporter must immediately contain all releases of universal wastes and other residues from universal wastes.

2. A universal waste transporter must determine whether any material resulting from the release is hazardous waste, and if so, is subject to all applicable requirements of chapters 33-24-01 through 33-24-04, 33-24-06 and sections 33-24-05-01 through 33-24-05-700. If the waste is determined to be hazardous waste, the transporter is subject to chapter 33-24-03.

History: Effective July 1, 1997.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-745. Offsite shipments.

1. A universal waste transporter is prohibited from transporting the universal waste to a place other than a universal waste handler, a destination facility, or a foreign destination.

2. If the universal waste being shipped offsite meets the department of transportation's definition of hazardous materials in 49 CFR 171.8, the shipment must be properly described on a shipping paper in accordance with the applicable department of transportation regulations under 49 CFR part 172.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-746. Exports. A universal waste transporter transporting a shipment of universal waste to a foreign destination may not accept a shipment if the transporter knows the shipment does not conform to the environmental protection agency acknowledgment of consent. In addition, the transporter must ensure that:

1. A copy of the environmental protection agency acknowledgment of consent accompanies the shipment; and

2. The shipment is delivered to the facility designated by the person initiating the shipment.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-747. [Reserved]

33-24-05-748. [Reserved]

33-24-05-749. [Reserved]

33-24-05-750. Applicability - destination facilities.

1. The owner or operator of a destination facility (as defined in section 33-24-01-04) is subject to all applicable requirements of sections 33-24-05-01 through 33-24-05-700 and chapters 33-24-06 and 33-24-07, and the notification requirement under section 3010 of the Resource Conservation and Recovery Act.

2. The owner or operator of a destination facility that recycles a particular universal waste without storing that universal waste before it is recycled must comply with subdivision b of subsection 3 of section 33-24-02-06.

History: Effective July 1, 1997.

General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-751. Offsite shipments.

1. The owner or operator of a destination facility is prohibited from sending or taking universal waste to a place other than a universal waste handler, another destination facility, or foreign destination.

2. The owner or operator of a destination facility may reject a shipment containing universal waste or a portion of a shipment containing universal waste. If the owner or operator of the destination facility rejects a shipment or a portion of a shipment, the destination facility must contact the shipper to notify the shipper of the rejection and to discuss reshipment of the load. The owner or operator of the destination facility shall:

   a. Send the shipment back to the original shipper; or

   b. If agreed to by both the shipper and the owner or operator of the destination facility, send the shipment to another destination facility.

3. If the owner or operator of a destination facility receives a shipment containing hazardous waste that is not a universal waste, the owner or operator of the destination facility shall immediately notify the department of the illegal shipment, and provide the name, address and telephone number of the originating shipper. The department will provide instructions for managing the hazardous waste.

4. If the owner or operator of a destination facility receives a shipment of nonhazardous, nonuniversal waste, the owner or operator of the destination facility may manage the waste in any way that is in compliance with applicable federal or state solid waste regulations.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-752. Tracking universal waste shipments.

1. The owner or operator of a destination facility shall keep a record of each shipment of universal waste received at the facility. The record may take the form of a log, invoice, manifest, bill of lading or other shipping document. The record for each shipment of universal waste sent must include the following information:

   a. The name and address of the universal waste handler, destination facility or foreign shipper from whom the universal waste was sent;

   b. The quantity of each type of universal waste received (for example, batteries, pesticides, mercury containing devices); and

   c. The date of receipt of the shipment of universal waste.

2. The owner or operator of a destination facility must retain the records described in subsection 1 for at least three years from the date of receipt of a shipment of universal waste.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-753. [Reserved]

33-24-05-754. [Reserved]

33-24-05-755. Imports. Persons managing universal waste that is imported from a foreign country into the United States are subject to the applicable requirements of sections 33-24-05-701 through 33-24-05-765, immediately after the waste enters the United States, as indicated below:

1. A universal waste transporter is subject to the universal waste transporter requirements of sections 33-24-05-740 through 33-24-05-749.

2. A universal waste handler is subject to the universal waste handler requirements of sections 33-24-05-710 through 33-24-05-739, as applicable.

3. An owner or operator of a destination facility is subject to the destination facility requirements of sections 33-24-05-750 through 33-24-05-754.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-756. [Reserved]

33-24-05-757. [Reserved]

33-24-05-758. [Reserved]

33-24-05-759. [Reserved]

33-24-05-760. Petitions to include other wastes under sections 33-24-05-701 through 33-24-05-765.

1. Any person seeking to add a hazardous waste or a category of hazardous waste to sections 33-24-05-701 through 33-24-05-765 may petition for a regulatory amendment under sections 33-24-05-760 through 33-24-05-765, 33-24-01-06, and 33-24-01-08.

2. To be successful, the petitioner must demonstrate to the satisfaction of the department that regulation under the universal waste regulations of sections 33-24-05-701 through 33-24-05-765 is appropriate for the waste or category of waste; will improve management practices for the waste or category of waste; and will improve implementation of the hazardous waste program. The petition must include the information required by subsection 2 of section 33-24-01-06. The petition should also address as many of the factors listed in section 33-

24-05-761 as are appropriate for the waste or waste category addressed in the petition.

3. The department will evaluate petitions using the factors listed in section 33-24-05-761. The department will grant or deny a petition using the factors listed in section 33-24-05-761. The decision will be based on the weight of evidence showing that regulation under sections 33-24-05-701 through 33-24-05-765 is appropriate for the waste or category of waste, will improve management practices for the waste of category of waste, and will improve implementation of the hazardous waste program.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-761. Factors for petitions to include other wastes under sections 33-24-05-701 through 33-24-05-765.

1. The waste or category of waste, as generated by a wide variety of generators, is listed in sections 33-24-02-15 through 33-24-02-19, or (if not listed) a proportion of the waste stream exhibits one or more characteristics of hazardous waste identified in sections 33-24-02-10 through 33-24-02-14. (When a characteristic waste is added to the universal waste regulations of sections 33-24-05-701 through 33-24-05-765 by using a generic name to identify the waste category (for example, batteries), the definition of universal waste in section 33-24-01-04 will be amended to include only the hazardous waste portion of the waste category (for example, hazardous waste batteries).) Thus, only the portion of the waste stream that does exhibit one or more characteristics (therefore, is hazardous waste) is subject to the universal waste regulations of sections 33-24-05-701 through 33-24-05-765;

2. The waste or category of waste is not exclusive to a specific industry or group of industries, is commonly generated by a wide variety of types of establishments (including, for example, households, retail and commercial businesses, office complexes, conditionally exempt small quantity generators, small businesses, government organizations, as well as large industrial facilities);

3. The waste or category of waste is generated by a large number of generators (for example, more than one thousand nationally) and is frequently generated in relatively small quantity by each generator;

4. Systems to be used for collecting the waste or category of waste (including packaging, marking, and labeling practices) would ensure close stewardship of the waste;

5. The risk posed by the waste or category of waste during accumulation and transport is relatively low compared to other hazardous wastes, and specific management standards proposed or referenced by the petitioner (for example, waste management requirement appropriate to be added to sections 33-24-05-713, 33-24-05-728, and 33-24-05-742; or applicable department of transportation requirements) would be protective of human health and environment during accumulation and transport;

6. Regulation of the waste or category of waste under sections 33-24-05-701 through 33-24-05-765 will increase the likelihood that the waste will be diverted from the nonhazardous waste management systems (for example, the municipal waste stream, nonhazardous industrial or commercial waste stream, municipal sewer, or stormwater systems) to recycling, treatment, or disposal in compliance with the hazardous waste management rules;

7. Regulation of the waste or category of waste under sections 33-24-05-701 through 33-24-05-765 will improve implementation of the hazardous waste regulatory program; and

8. Such other factors as may be appropriate.

History: Effective July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-05-762. [Reserved]

33-24-05-763. [Reserved]

33-24-05-764. [Reserved]

33-24-05-765. [Reserved]

APPENDIX I
RECORDKEEPING INSTRUCTIONS

The recordkeeping instructions of section 33-24-05-40 specify that an owner or operator must keep a written operating record at the facility. This appendix provides additional instructions for keeping portions of the operating record. See subsection 2 of section 33-24-05-40 for additional recordkeeping requirements.

The following information must be recorded as it becomes available and maintained in the operating record until closure of the facility in the following manner:

Records of each hazardous waste received, treated, stored, or disposed of at the facility which include the following:

1. A description by its common name and the hazardous waste numbers from chapter 33-24-02 which apply to the waste. The waste description must also include the wastes' physical form, ~~i.e.~~ for example, liquid, sludge, soil or contained gas. If the waste is not listed in chapter 33-24-02 the description must also include the process that produced it (for example, solid filter cake from the production of _____, hazardous waste number W051).

   Each hazardous waste listed in and each hazardous waste characteristic defined in chapter 33-24-02 has a four-digit hazardous waste number assigned to it. This number must be used for recordkeeping and reporting purposes. Where more than one hazardous waste number applies, the waste description must include all applicable numbers.

2. The estimated or manifest-reported weight or volume and density, where applicable, in one of the units of measure specified in table 1.

3. The methods (by handling codes as specified in table 2) and the dates of treatment, storage or disposal.

~~Table 1~~

~~Unit of Measure~~	~~Symbol[1]~~	~~Density~~
~~Pounds~~	~~P~~	
~~Short Tons (2,000 lbs)~~	~~T~~	
~~Gallons (US)~~	~~G~~	~~P/G~~
~~Cubic Yards~~	~~Y~~	~~T/Y~~
~~Kilograms~~	~~K~~	
~~Tonnes (1,000 kg)~~	~~M~~	
~~Liters~~	~~L~~	~~K/L~~
~~Cubic Meters~~	~~C~~	~~M/C~~

~~[1]Single digit symbols are used here for data processing purposes.~~

~~Table 2. Handling Codes for Treatment, Storage and Disposal Methods~~

~~Enter the handling code listed below that most closely represents the technique used~~

at the facility to treat, store, or dispose of each quantity of hazardous waste received.

1. STORAGE
   - S01 Container (barrel, drum, etc.)
   - S02 Tank
   - S03 Waste Pile
   - S04 Surface Impoundment
   - S05 Other (Specify)

2. THERMAL TREATMENT
   - T06 Liquid Injection Incinerator
   - T07 Rotary Kiln Incinerator
   - T08 Fluidized Bed Incinerator
   - T09 Multiple Hearth Incinerator
   - T10 Infrared Furnace Incinerator
   - T11 Molten Salt Destructor
   - T12 Pyrolysis
   - T13 Wet Air Oxidation
   - T14 Calcination
   - T15 Microwave Discharge
   - T16 Cement Kiln
   - T17 Lime Kiln
   - T18 Other (Specify)

3. CHEMICAL TREATMENT
   - T19 Absorption Mound
   - T20 Absorption Field
   - T21 Chemical Fixation
   - T22 Chemical Oxidation
   - T23 Chemical Precipitation
   - T24 Chemical Reduction
   - T25 Chlorination
   - T26 Chlorinolysis
   - T27 Cyanide Destruction
   - T28 Degradation
   - T29 Detoxification
   - T30 Ion Exchange
   - T31 Neutralization
   - T32 Ozonation
   - T33 Photolysis
   - T34 Other (Specify)

4. PHYSICAL TREATMENT BY SEPARATION OF COMPOUNDS
   - T35 Centrifugation
   - T36 Clarification
   - T37 Coagulation
   - T38 Decanting
   - T39 Encapsulation
   - T40 Filtration
   - T41 Flocculation
   - T42 Flotation (continued)

Table 2. Handling Codes for Treatment, Storage and Disposal Methods (continued)

PHYSICAL TREATMENT BY SEPARATION OF COMPOUNDS (continued)

T43 Foaming
T44 Sedimentation
T45 Thickening
T46 Ultrafiltration
T47 Other(Specify)

5. PHYSICAL TREATMENT BY REMOVAL OF SPECIFIC COMPONENTS
T48 Absorption - Molecular Sieve
T49 Activated Carbon
T50 Blending
T51 Catalysis
T52 Crystallization
T53 Dialysis
T54 Distillation
T55 Electrodialysis
T56 Electrolysis
T57 Evaporation
T58 High Gradient Magnetic Separation
T59 Leaching
T60 Liquid Ion Exchange
T61 Liquid - Liquid Extraction
T62 Reverse Osmosis
T63 Solvent Recovery
T64 Stripping
T65 Sand Filter
T66 Other (Specify)

6. BIOLOGICAL TREATMENT
T67 Activated Sludge
T68 Aerobic Lagoon
T69 Aerobic Tank
T70 Anaerobic Lagoon
T71 Composting
T72 Septic Tank
T73 Spray Irrigation
T74 Thickening Filter
T75 Trickling Filter
T76 Waste Stabilization Pond
T77 Other (Specify)
T78 Reserved
T79 Reserved

7. DISPOSAL
D80 Underground Injection
D81 Landfill
D82 Land Treatment
D83 Reserved
D84 Surface Impoundment (to be closed as a landfill)
D85 Other (Specify)

ADD NEW TABLES 1&2:

Table 1

Unit of Measure	Code[1]
Gallons	G
Gallons per hour	E
Gallons per day	U
Liters	L
Liters per hour	H
Liters per day	V
Short tons per hour	D
Metric tons per hour	W
Short tons per day	N
Metric tons per day	S
Pounds per hour	J
Kilograms per hour	R
Cubic yards	Y
Cubic meters	C
Acres	B
Acre-feet	A
Hectares	Q
Hectare-meter	F
Btu's per hour	I

FOOTNOTE: [1]Single digit symbols are used here for data processing purposes.

Table 2. Handling Codes for Treatment, Storage and Disposal Methods. Enter the handling code listed below that most closely represents the technique(s) used at the facility to treat, store or dispose of each quantity of hazardous waste received.	
1. Storage	
S01	Container (barrel, drum, etc.)
S02	Tank
S03	Waste pile
S04	Surface impoundment
S05	Drip pad
S06	Containment building (storage)
S99	Other Storage (specify)
2. Thermal Treatment	
T06	Liquid injection incinerator
T07	Rotary kiln incinerator
T08	Fluidized bed incinerator
T09	Multiple hearth incinerator

Table 2. Handling Codes for Treatment, Storage and Disposal Methods. Enter the handling code listed below that most closely represents the technique(s) used at the facility to treat, store or dispose of each quantity of hazardous waste received.	
T10	Infrared furnace incinerator
T11	Molten salt destructor
T12	Pyrolysis
T13	Wet air oxidation
T14	Calcination
T15	Microwave discharge
T18	Other (specify)
3. Chemical Treatment	
T19	Absorption mound
T20	Absorption field
T21	Chemical fixation
T22	Chemical oxidation
T23	Chemical precipitation
T24	Chemical reduction
T25	Chlorination
T26	Chlorinolysis
T27	Cyanide destruction
T28	Degradation
T29	Detoxification
T30	Ion exchange
T31	Neutralization
T32	Ozonation
T33	Photolysis
T34	Other (specify)
4. Physical Treatment By Separation of Components:	
T35	Centrifugation
T36	Clarification
T37	Coagulation
T38	Decanting
T39	Encapsulation
T40	Filtration
T41	Flocculation
T42	Flotation
T43	Foaming
T44	Sedimentation
T45	Thickening

Table 2. Handling Codes for Treatment, Storage and Disposal Methods. Enter the handling code listed below that most closely represents the technique(s) used at the facility to treat, store or dispose of each quantity of hazardous waste received.	
T46	Ultrafiltration
T47	Other (specify)
5. Physical Treatment By Removal of Specific Components:	
T48	Absorption-molecular sieve
T49	Activated carbon
T50	Blending
T51	Catalysis
T52	Crystallization
T53	Dialysis
T54	Distillation
T55	Electrodialysis
T56	Electrolysis
T57	Evaporation
T58	High gradient magnetic separation
T59	Leaching
T60	Liquid ion exchange
T61	Liquid-liquid extraction
T62	Reverse osmosis
T63	Solvent recovery
T64	Stripping
T65	Sand filter
T66	Other (specify)
6. Biological Treatment	
T67	Activated sludge
T68	Aerobic lagoon
T69	Aerobic tank
T70	Anaerobic tank
T71	Composting
T72	Septic tank
T73	Spray irrigation
T74	Thickening filter
T75	Tricking filter
T76	Waste stabilization pond
T77	Other (specify)
T78	[Reserved]
T79	[Reserved]

Table 2. Handling Codes for Treatment, Storage and Disposal Methods. Enter the handling code listed below that most closely represents the technique(s) used at the facility to treat, store or dispose of each quantity of hazardous waste received.	
7. Boilers and Industrial Furnaces	
T80	Boiler
T81	Cement kiln
T82	Lime kiln
T83	Aggregate kiln
T84	Phosphate kiln
T85	Coke oven
T86	Blast furnace
T87	Smelting, melting, or refining furnace
T88	Titanium dioxide chloride process oxidation reactor
T89	Methane reforming furnace
T90	Pulping liquor recovery furnace
T91	Combustion device used in the recovery of sulfur values from spent sulfuric acid
T92	Halogen acid furnaces
T93	Other industrial furnaces listed in section 33-24-01-04 (specify)
8. Other Treatment	
T94	Containment building (treatment)
9. Disposal	
D79	Underground injection
D80	Landfill
D81	Land treatment
D82	Ocean disposal
D83	Surface impoundment (to be closed as a landfill)
D99	Other disposal (specify)
10. Miscellaneous Units	
X01	open burning/open detonation
X02	Mechanical processing
X03	Thermal unit
X04	Geologic repository
X99	Other miscellaneous unit (specify)

APPENDIX II
COCHRAN'S APPROXIMATION TO THE BEHRENS-FISHER STUDENT'S T-TEST

Using all the available background data (n_b readings) calculate the background mean (X_b) and background variance (S_B^2). For the single monitoring well under investigation (n_m reading), calculate the monitoring mean (X_m) and monitoring variance (S_m^2). For any set of data (X_1, $X_2 \ldots X_n$) the mean is calculated by:

$$\overline{X} = \frac{X_1 + X_2 \ldots + X_n}{n}$$

And the variance is calculated by:

$$S^2 = \frac{(X_1 - \overline{X})^2 + (X_2 - \overline{X})^2 \ldots + (X_n - \overline{X})^2}{n-1}$$

Where "n" denotes the number of observations in the set of data.

The T-Test uses these data summary measures to calculate a T-statistic (T^*) and a comparison T-statistic (T_c). The T^* is compared to the T_c value and a conclusion reached as to whether there has been a statistically significant change in any indicator parameter.

The T-statistic for all parameters, except pH and similar monitoring parameters, is:

$$T^* = \frac{X_m - \overline{X_B}}{\frac{S_m 2}{n_M} + \frac{S_B 2}{n_B}}$$

If the value of this T-statistic is negative, then there is no significant difference between the monitoring data and the background data. It should be noted that significantly small negative values may be indicative of a failure of the assumption made for test validity or errors have been made in collecting the background data.

The T-statistic (T_c) against which T^* will be compared necessitates finding T_b and T_m from standard (one-tailed) tables where:

T_B = T-tables (n_B - 1) degrees of freedom at the 0.05 level of significance.

T_m = T-tables with (n_m - 1) degrees of freedom at the 0.05 level of significance.Finally, the special weightings W_B and W_m are defined as:

$$W_B = \frac{S_B 2}{n_B} \text{ and } W_m = \frac{S_m 2}{n_m}$$

APPENDIX II
COCHRAN'S APPROXIMATION TO THE BEHRENS-FISHER STUDENT'S T-TEST

And so the comparison T-statistic is:

$$T_c = \frac{W_B T_B + W_m T_m}{W_B + W_m}$$

The T-statistic (T^*) is now compared with the comparison T-statistic (T_c) using the following decision rule:

> If T^* is equal to or larger than T_c, then conclude that there most likely has been a significant increase in this specific parameter. If T^* is less than T_c, then conclude that most likely there has not been a change in this specific parameter.

The T-statistic for testing pH and similar monitoring parameters is constructed in the same manner as previously described, except the negative sign (if any) is discarded and the caviot concerning the negative value is ignored. The standard (two-tailed) tables are used in the construction T_c for pH and similar monitoring parameters.

If T^* is equal to or larger than T_c, then conclude that there most likely has been a significant increase (if the initial T* had been negative, this would imply a significant decrease).

If T^* is less than T_c then conclude that there most likely has been no change.

A further discussion of the test may be found in STATISTICAL METHODS (6th Edition, Section 4.14) by G.W. Snedecor and W.G. Cochran, or PRINCIPLES AND PROCEDURES OF STATISTICS (1st Edition, Section 5.8) by R.G.D. Steel and J.H. Torrie.

STANDARD T-TABLES
0.05 LEVEL OF SIGNIFICANCE

Degrees of Freedom	T-Values (1-tailed)	T-Values (2-tailed)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776
5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10	1.812	2.228
11	1.796	2.201
12	1.782	2.179
13	1.771	2.160
14	1.761	2.145
15	1.753	2.131
16	1.746	2.120
17	1.740	2.110
18	1.734	2.101
19	1.729	2.093
20	1.725	2.086
21	1.721	2.080
22	1.717	2.074
23	1.714	2.069
24	1.711	2.064
25	1.708	2.060
30	1.697	2.042
40	1.684	2.021

Taken from 40 CFR, Part 264, Appendix IV, 47FR34329, July 26, 1982.

APPENDIX III
EXAMPLES OF POTENTIALLY INCOMPATIBLE WASTE

Many hazardous wastes, when mixed with other waste or materials at a hazardous waste facility, can produce effects which are harmful to human health and the environment, such as (1) heat or pressure, (2) fire or explosion, (3) violent reaction, (4) toxic dusts, mists, fumes, or gases, or (5) flammable fumes or gases.

Below are examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences which result from mixing materials in one group with materials in another group. The list is intended as a guide to owners or operators of treatment, storage, and disposal facilities, and to enforcement and permit granting officials, to indicate the need for special precautions when managing these potentially incompatible waste materials or components.

This list is not intended to be exhaustive. An owner or operator must, as the regulations require, adequately analyze his wastes so that he can avoid creating uncontrolled substances or reactions of the type listed below, whether they are listed below or not.

It is possible for potentially incompatible wastes to be mixed in a way that precludes a reaction (for example, adding acid to water rather than water to acid) or that neutralizes them (for example, a strong acid mixed with a strong base), or that controls substances produced (for example, by generating flammable gases in a closed tank equipped so that ignition cannot occur, and burning the gases in an incinerator).

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequence as noted.

Group 1-A
Acetylene sludge
Alkaline caustic liquids
Alkaline cleaner
Alkaline corrosive liquids
Alkaline corrosive battery fluid
Caustic wastewater
Lime sludge and other corrosive alkalies
Lime wastewater
Lime and water
Spent caustic

Group 1-B
Acid sludge
Acid and water
Battery acid
Chemical cleaners
Electrolyte, acid
Etching acid liquid or solvent
Pickling liquor and other corrosive acids
Spent acid
Spent mixed acid
Spent sulfuric acid
Potential consequences: Heat generation; violent reaction.

APPENDIX III (continued)
EXAMPLES OF POTENTIALLY INCOMPATIBLE WASTE

Group 2-A
Aluminum
Beryllium
Calcium
Lithium
Magnesium
Potassium
Sodium
Zinc powder
Other reactive metals and metal hydrides

Group 2-B
Any waste in Group 1-A or 1-B
Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

Group 3-A
Alcohols
Water

Group 3-B
Any concentrated waste in Groups 1-A or 1-B
Calcium
Lithium
Metal hydrides
Potassium
SO_2Cl_2, $SOCl_2$, PCl_3,
CH_3SiCl_3
Other water-reactive waste
Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 4-A
Alcohols
Aldehydes
Halogenated hydrocarbons
Nitrated hydrocarbons
Unsaturated hydrocarbons
Other reactive organic compounds and solvents

Group 4-B
Concentrated Group 1-A or 1-B wastes
Group 2-A wastes
Potential consequences: Fire, explosion, or violent reaction.

Group 5-A
Spent cyanide and sulfide solutions

Group 5-B
Group 1-B wastes
Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6-A
Chlorates
Chlorine
Chlorites
Chromic acid
Hypochlorites
Nitrates
Nitric acid, fuming
Perchlorates
Permanganates
Peroxides
Other strong oxidizers

Group 6-B
Acetic acid and other organic acids
Concentrated mineral acids
Group 2-A wastes
Group 4-A wastes
Other flammable and combustible wastes
Potential consequences: Fire, explosion, or violent reaction.

APPENDIX IV
NOTIFICATION OF HAZARDOUS WASTE ACTIVITY FORM

APPENDIX IV
NOTIFICATION OF HAZARDOUS WASTE ACTIVITY FORM (Continued)

APPENDIX V
EXTRACTION PROCEDURE (EP) TOXICITY TEST METHOD AND STRUCTURAL INTEGRITY TEST (SW-846, METHOD 1310A)

Note: The extraction procedure (EP), method 1310, is published in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05.

1.0 Scope and Application

1.1 This method is an interim method to determine whether a waste exhibits the characteristic of Extraction Procedure Toxicity.

1.2 The procedure may also be used to simulate the leaching which a waste may undergo if disposed of in a sanitary landfill. Method 1310 is applicable to liquid, solid, and multiphase samples.

2.0 Summary of Method

2.1 If a representative sample of the waste contains >0.5% solids, the solid phase of the sample is ground to pass a 9.5 mm sieve and extracted with deionized water which is maintained at a pH of 5 ± 0.2, with acetic acid. Wastes that contain <0.5% filterable solids are, after filtering, considered to be the EP extract for this method. Monolithic wastes which can be formed into a cylinder 3.3 cm (dia) x 7.1 cm, or from which such a cylinder can be formed which is representative of the waste, may be evaluated using the Structural Integrity Procedure instead of being ground to pass a 9.5-mm sieve.

3.0 Interferences

3.1 Potential interferences that may be encountered during analysis are discussed in the individual analytical methods.

4.0 Apparatus and Materials

4.1 Extractor-For purposes of this test, an acceptable extractor is one that will impart sufficient agitation to the mixture to (1) prevent stratification of the sample and extraction fluid and (2) ensure that all sample surfaces are continuously brought into contact with well-mixed extraction fluid. Examples of suitable extractors are shown in Figures 1-3 of this method and are available from: Associated Designs & Manufacturing Co., Alexandria, Virginia; Glas-Col Apparatus Co., Terre Haute, Indiana; Millipore, Bedford, Massachusetts; and Rexnard, Milwaukee, Wisconsin.

4.2 pH meter or pH controller-Accurate to 0.05 pH units with temperature compensation.

4.3 Filter holder-Capable of supporting a 0.45-μm filter membrane and of withstanding the pressure needed to accomplish separation. Suitable filter holders range from simple vacuum units to relatively complex systems that can exert up to 5.3 kg/cm^3 (75 psi) of pressure. The type of filter holder used depends upon the properties of the mixture to be filtered. Filter holders known to environmental protection agency and deemed suitable for use are listed in table 1.

4.4 Filter membrane-Filter membrane suitable for conducting the required filtration shall be fabricated from a material that (1) is not physically changed by the waste material to be filtered and (2) does not absorb or leach the chemical species for which a waste's EP extract will be analyzed. table 2 lists filter media known to the agency to be suitable for solid waste testing.

4.4.1 In cases of doubt about physical effects on the filter, contact the filter manufacturer to determine if the membrane or the prefilter is adversely affected by the particular waste. If no information is available, submerge the filter in the waste's liquid phase. A filter that undergoes visible physical change after 48 hours (~~i.e.~~ for example, curls, dissolves, shrinks, or swells) is unsuitable for use.

4.4.2 To test for absorption or leaching by the filter:

4.4.2.1 Prepare a standard solution of the chemical species of interest.

4.4.2.2 Analyze the standard for its concentration of the chemical species.

4.4.2.3 Filter the standard and reanalyze. If the concentration of the filtrate differs from that of the original standard, then the filter membrane leaches or absorbs one or more of the chemical species and is not usable in this test method.

4.5 Structural integrity tester-A device meeting the specifications shown in Figure 4 and having a 3.18-cm (1.25-in) diameter hammer weighing 0.33 kg (0.73 lb) with a free fall of 15.24 cm (6 in) shall be used. This device is available from Associated Design and Manufacturing Company, Alexandria, VA 22314, as Part No. 125, or it may be fabricated to meet these specifications.

5.0 Reagents

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Reagent water. All references to water in this method refer to reagent water, as defined in Chapter One.

5.3 Acetic acid (0.5N), CH_3COOH. This can be made by diluting concentrated glacial acetic acid (17.5N) by adding 57 ml glacial acetic acid to 1,000 ml of water and diluting to 2 liters. The glacial acetic acid must be of high purity and monitored for impurities.

5.4 Analytical standards should be prepared according to the applicable analytical methods.

6.0 Sample Collection, Preservation, and Handling

6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in Chapter Nine of this manual.

6.2 Preservatives must not be added to samples.

6.3 Samples can be refrigerated if it is determined that refrigeration will not affect the integrity of the sample.

7.0 Procedure

7.1 If the waste does not contain any free liquid, go to Step 7.9. If the sample is liquid or multiphase, continue as follows. Weigh filter membrane and prefilter to ± 0.01 g. Handle membrane and prefilters with blunt curved-tip forceps or vacuum tweezers, or by applying suction with a pipet.

7.2 Assemble filter holder, membranes, and prefilters following the manufacturer's instructions. Place the 0.45-μm membrane on the support screen and add prefilters in ascending order of pore size. Do not prewet filter membrane.

7.3 Weigh out a representative subsample of the waste (100 g minimum).

7.4 Allow slurries to stand, to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration.

7.5 Wet the filter with a small portion of the liquid phase from the waste or from the extraction mixture. Transfer the remaining material to the filter holder and apply vacuum or gentle pressure (10-15 psi) until all liquid passes through the filter. Stop filtration when air or pressurizing gas moves through the membrane. If this point is not reached under vacuum or gentle pressure, slowly increase the pressure in 10-psi increments to 75 psi. Halt filtration when liquid flow stops. This liquid will constitute part or all of the extract (refer to Step 7.16). The liquid should be refrigerated until time of analysis.

Note: Oil samples or samples containing oil are treated in exactly the same way as any other sample. The liquid portion of the sample is filtered and treated as part of the EP extract. If the liquid portion of the sample will not pass through the filter (usually the case with heavy oils or greases), it should be carried through the EP extraction as a solid.

7.6 Remove the solid phase and filter media and, while not allowing them to dry, weigh to ± 0.01 g. The wet weight of the residue is determined by calculating the weight difference between the weight of the filters (Step 7.1) and the weight of the solid phase and the filter media.

7.7 The waste will be handled differently from this point on, depending on whether it contains more or less than 0.5% solids. If the sample appears

to have <0.5% solids, determine the percent solids exactly (see Note below) by the following procedure:

7.7.1 Dry the filter and residue at 80 °C until two successive weighings yield the same value.

7.7.2 Calculate the percent solids, using the following equation:

$$\frac{\text{weight of filtered solid and filters} - \text{tared weight of filters}}{\text{initial weight of waste material}} \times 100 = \% \text{ solids}$$

Note: This procedure is used only to determine whether the solid must be extracted or whether it can be discarded unextracted. It is not used in calculating the amount of water or acid to use in the extraction step. Do not extract solid material that has been dried at 80 °C. A new sample will have to be used for extraction if a percent solids determination is performed.

7.8 If the solid constitutes <0.5% of the waste, discard the solid and proceed immediately to Step 7.17, treating the liquid phase as the extract.

7.9 The solid material obtained from Step 7.5 and all materials that do not contain free liquids shall be evaluated for particle size. If the solid material has a surface area per g of material ≥3.1 cm^2 or passes through a 9.5-mm (0.375-in.) standard sieve, the operator shall proceed to Step 7.11. If the surface area is smaller or the particle size larger than specified above, the solid material shall be prepared for extraction by crushing, cutting, or grinding the material so that it passes through a 9.5-mm (0.375-in.) sieve or, if the material is in a single piece, by subjecting the material to the "Structural Integrity Procedure" described in Step 7.10.

7.10 Structural Integrity Procedure (SIP).

7.10.1 Cut a 3.3-cm diameter by 7.1-cm long cylinder from the waste material. If the waste has been treated using a fixation process, the waste may be cast in the form of a cylinder and allowed to cure for 30 days prior to testing.

7.10.2 Place waste into sample holder and assemble the tester. Raise the hammer to its maximum height and drop. Repeat 14 additional times.

7.10.3 Remove solid material from tester and scrape off any particles adhering to sample holder. Weigh the waste to the nearest 0.01 g and transfer it to the extractor.

7.11 If the sample contains >0.5% solids, use the wet weight of the solid phase

(obtained in Step 7.6) to calculate the amount of liquid and acid to employ for extraction by using the following equation:

$W=W_f-W_t$

where:

W=Wet weight in g of solid to be charged to extractor.
W_f=Wet weight in g of filtered solids and filter media.
W_t=Weight in g of tared filters.

If the waste does not contain any free liquids, 100 g of the material will be subjected to the extraction procedure.

7.12 Place the appropriate amount of material (refer to Step 7.11) into the extractor and add 16 times its weight with water.

7.13 After the solid material and water are placed in the extractor, the operator shall begin agitation and measure the pH of the solution in the extractor. If the pH is >5.0, the pH of the solution shall be decreased to 5.0 ±0.2 by slowly adding 0.5N acetic acid. If the pH is ≤5.0, no acetic acid should be added. The pH of the solution shall be monitored, as described below, during the course of extraction, and, if the pH rises above 5.2, 0.5N acetic acid shall be added to bring the pH down to 5.0 ± 0.2. However, in no event shall the aggregate amount of acid added to the solution exceed 4 mL of acid per g of solid. The mixture shall be agitated for 24 hours and maintained at 20-40 °C (68-104 °F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller, manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123, or its equivalent, in conjunction with a metering pump and reservoir of 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed.

Note: Do not add acetic acid too quickly. Lowering the pH to below the target concentration of 5.0 could affect the metal concentrations in the leachate.

7.13.1 A pH meter shall be calibrated in accordance with the manufacturer's specifications.

7.13.2 The pH of the solution shall be checked and, if necessary, 0.5N acetic acid shall be manually added to the extractor until the pH reaches 5.0 ± 0.2. The pH of the solution shall be adjusted at 15-, 30-, and 60-minute intervals, moving to the next longer interval if the pH does not have to be adjusted more than 0.5 pH units.

7.13.3 The adjustment procedure shall be continued for at least 6 hours.

7.13.4 If, at the end of the 24-hour extraction period, the pH of the solution is not below 5.2 and the maximum amount of acid (4 mL per g of solids) has not been added, the pH shall be adjusted to

5.0 ± 0.2 and the extraction continued for an additional 4 hours, during which the pH shall be adjusted at 1-hour intervals.

7.14 At the end of the extraction period, water shall be added to the extractor in an amount determined by the following equation:

$$V=(20)(W)-16(W)-A$$

Where:

V=mL water to be added.
W=Weight in g of solid charged to extractor.
A=mL of 0.5N acetic acid added during extraction.

7.15 The material in the extractor shall be separated into its component liquid and solid phases in the following manner:

7.15.1 Allow slurries to stand to permit the solid phase to settle (wastes that are slow to settle may be centrifuged prior to filtration) and set up the filter apparatus (refer to Steps 4.3 and 4.4).

7.15.2 Wet the filter with a small portion of the liquid phase from the waste or from the extracted mixture. Transfer the remaining material to the filter holder and apply vacuum or gentle pressure (10-15 psi) until all liquid passes through the filter. Stop filtration when air or pressurized gas moves through the membrane. If this point is not reached under vacuum or gentle pressure, slowly increase the pressure in 10-psi increments to 75 psi. Halt filtration when liquid flow stops.

7.16 The liquids resulting from Steps 7.5 and 7.15 shall be combined. This combined liquid (or waste itself, if it has < 0.5% solids, as noted in Step 7.8) is the extract and shall be analyzed for the presence of any of the contaminants specified in 40 CFR 261.24 using the analytical procedures as designated in Step 7.17.

7.17 The extract is then prepared and analyzed using the appropriate analytical methods described in Chapters Three and Four of this manual.

Note: If the EP extract includes two phases, concentration of contaminants is determined by using a simple weighted average. For example: An EP extract contains 50 mL of oil and 1,000 mL of an aqueous phase. Contaminant concentrations are determined for each phase. The final contamination concentration is taken to be:

$$\frac{50 \times \text{contaminant conc. in oil} + 1{,}000 \times \text{contamination conc. of aqueous phase}}{\qquad\qquad}$$

Note: In cases where a contaminant was not detected, use the MDL in the calculation. For example, if the MDL in the oily phase is 100 mg/L and 1 mg/L in the aqueous phase, the reporting limit would be 6 mg/L (rounded to the nearest mg). If the regulatory threshold is 5 mg/L, the waste may be EP toxic and results of the analysis are inconclusive.

7.18 The extract concentrations are compared with the maximum contamination limits listed in 40 CFR 261.24. If the extract concentrations are greater than or equal to the respective values, the waste then is considered to exhibit the characteristic of Extraction Procedure Toxicity.

8.0 Quality Control

8.1 Refer to Chapter One for specific quality control procedures.

9.0 Method Performance

9.1 The data tabulated in table 3 were obtained from records of state and contractor laboratories and are intended to show the precision of the entire method (1301 plus analysis method).

10.0 References

1. Rohrbough, W.G.; et al. Reagent Chemicals, American Chemical Society Specifications, 7th ed.; American Chemical Society: Washington, DC 1986.

2. 1985 Annual Book of ASTM Standards, Vol. 11.01; "Standard Specification for Reagent Water"; ASTM: Philadelphia, PA, 1985; D1193-77.

3. Gaskill, A., Compilation and Evaluation of Resource Conservation and Recovery Act Method Performance Data, Work Assignment No. 2, Environmental Protection Agency Contract No. 68-01-7075, September 1986.

Table 1. Environmental Protection Agency-Approved Filter Holders

Manufacturer	Size	Model No.	Comments
Vacuum Filters			
Gelman	47 mm	4011	
Nalgene	500 mL	44-0045	Disposable plastic unit, including prefilter, filter pads, and reservoir; can be used when solution is to be analyzed for inorganic constituents.
Nuclepore	47 mm	410400	
Millipore	47 mm	XX10 047 00	
Pressure Filters			
Nuclepore	142 mm	425900	
Micro Filtration Systems	142 mm	302300	
Millipore	142 mm	YT30 142 HW	

Table 2. Environmental Protection Agency-Aapproved Filtration Media

Supplier	Filter to be used for aqueous systems	Filter to be used for organic systems
Coarse prefilters		
Gelman	61631, 61635	61631, 61635
Nuclepore	210907, 211707	210907, 211707
Millipore	AP25 035 00, AP25 127 50	AP25 035 00, AP25 127 50
Medium prefilters		
Gelman	61654, 61655	
Nuclepore	210905, 211705	210905, 211705
Millipore	AP20 035 00, AP20 124 50	AP20 035 00, AP20 124 50
Fine prefilters		
Gelman	64798, 64803	64798, 64803
Nuclepore	210903, 211703	210903, 211703
Millipore	AP15 035 00, AP15 124 50	AP15 035 00, AP15 124 50
Fine filters (0.45 μm)		
Gelman	63069, 66536	60540 or 66149, 66151
Pall	NX04750, NX14225	
Nuclepore	142218	[a]142218
Millipore	HAWP 047 00, HAWP 142 50	FHUP 047 00, FHLP 142 50
Selas	83485-02, 83486-02	83485-02, 83486-02

FOOTNOTE: [a]Susceptible to decomposition by certain polar organic solvents.

Table 3. Precisions of Extraction-Analysis Procedures for Several Elements

Element	Sample matrix	Analysis method	Laboratory replicates
Arsenic	1. Auto fluff	7060	1.8,1.5 µg/L
	2. Barrel sludge	7060	0.9, 2.6 µg/L
	3. Lumber treatment company sediment	7060	28, 42 mg/L
Barium	1. Lead smelting emission control dust	6010	0.12, 0.12 mg/L
	2. Auto fluff	7081	791, 780 µg/L
	3. Barrel sludge	7081	422, 380 µg/L
Cadmium	1. Lead smelting emission control dust	3010/7130	120, 120 mg/L
	2. Wastewater treatment sludge from electroplating	3010/7130	360, 290 mg/L
	3. Auto fluff	7131	470, 610 µg/L
	4. Barrel sludge	7131	1100, 890 µg/L
	5. Oil refinery tertiary pond sludge	7131	3.2, 1.9 µg/L
Cadmium	1. Lead smelting emission control dust	3010/7130	120, 120 mg/L
	2. Wastewater treatment sludge from electroplating	3010/7130	360, 290 mg/L
	3. Auto fluff	7131	470, 610 µg/L
	4. Barrel sludge	7131	1100, 890 µg/L
	5. Oil refinery tertiary pond sludge	7131	3.2, 1.9 µg/L
Chromium	1. Wastewater treatment sludge from electroplating	3010/7190	1.1, 1.2 mg/L
	2. Paint primer	7191	61, 43 µg/L
	3. Paint primer filter	7191	-
	4. Lumber treatment company sediment	7191	0.81, 0.89 mg/L
	5. Oil refinery tertiary pond sludge	7191	-
Mercury	1. Barrel sludge	7470	0.15, 0.09 µg/L
	2. Wastewater treatment sludge from electroplating	7470	1.4, 0.4 µg/L
	3. Lead smelting emission control dust	7470	0.4, 0.4 µg/L
Lead	1. Lead smelting emission control dust	3010/7420	940, 920 mg/L
	2. Auto fluff	7421	1540, 1490 µg/L
	3. Incinerator ash	7421	1000, 974 µg/L
	4. Barrel sludge	7421	2550, 2800 µg/L
	5. Oil refinery tertiary pond sludge	7421	31, 29 µg/L
Nickel	1. Sludge	7521	2260, 1720 µg/L
	2. Wastewater treatment sludge from electroplating	3010/7520	130, 140 mg/L
Chromium (VI)	1. Wastewater treatment sludge from electroplating	7196	18, 19 µg/L

APPENDIX VI
TREATMENT STANDARDS
(As concentrations in the treatment residual extract)

Note: The treatment standards for F001-F005 Spent Solvent Wastes appear in sections 33-24-05-281, 33-24-05-282, 33-24-05-283.

APPENDIX VII
LIST OF HALOGENATED ORGANIC COMPOUNDS REGULATED UNDER SECTION 33-24-05-272

In determining the concentration of HOCs in a hazardous waste for purposes of the section 33-24-05-272 land disposal prohibition, the department has defined the HOCs that must be included in the calculation as any compounds having a carbon-halogen bond which are listed in this Appendix (see Section 33-24-05-251). Appendix VII consists of the following compounds:

Volatiles

Bromodichloromethane
Bromomethane
Carbon Tetrachloride
Chlorobenzene
2-Chloro-1,3-butadiene
Chlorodibromomethane
Chloroethane
2-Chloroethyl vinyl ether
Chloroform
Chloromethane
3-Chloropropene
1,2-Dibromo-3-chloropropane
1,2-Dibromomethane
Dibromomethane
Trans-1,4-Dichloro-2-butene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
Trans-1,2-Dichloroethene
1,2-Dichloropropane
Trans-1,3-Dichloropropene
cis-1,3-Dichloropropene
Iodomethane
Methylene chloride
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Tribromomethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichloromonofluoromethane
1,2,3-Trichloropropane
Vinyl chloride

Semivolatiles

Bis(2-chloroethoxy)ethane
Bis(2-chlorothyl)ether
Bis(2-chloroisopropyl)ether
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol
2-Chloronaphthalene

Semivolatiles (continued)

2-Chlorophenol
3-Chloropropionitrile
m-Dichlorobenzene
o-Dichlorobenzene
p-Dichlorobenzene
3,3-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloroprophene
Hexachloropropene
4,4-Methylenebis(2-chloroaniline)
Pentachlorobenzene
Pentachloroethane
Pentachloronitrobenzene
Pentachlorophenol
Pronamide
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Tris(2,3-dibromopropyl)phosphate

Organochlorine Pesticides

Aldrin
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC
Chlordane
DDD
DDE
DDT
Dieldrin
Endosulfan I
Endosulfan II
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide

APPENDIX VII (CONTINUED)
LIST OF HALOGENATED ORGANIC COMPOUNDS REGULATED
UNDER SECTION 33-24-05-272

Organochlorine Pesteicides (continued)
Isodrin
Kepone
Methoxyclor
Toxaphene

Phenoxyacetic Acid Herbicides
2,4-Dichlorophenoxyacetic acid
Silvex
2,4,5-T

PCBs
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
PCBs not otherwise specified

Dioxins and Furans
Hexachlorodibenzo-p-dioxins
Hexachlorodibenzofuran
Pentachlorodibenzo-p-dioxins
Pentachlorodibenzofuran
Tetrachlorodibenzo-p-dioxins
Tetrachlorodibenzofuran
2,3,7,8-Tetrachlorodibenzo-p-dioxin

APPENDIX VIII
ORGANOMETALLIC LAB PACKS

~~Hazardous waste with the following Hazardous Waste Code No. may be placed in an "organometallic" or "appendix VIII lab pack:"~~ Appendix VIII - wastes excluded from lab packs under the alternative treatment standards of subsection 3 of section 33-24-05-282. Hazardous waste with the following hazardous waste codes may not be placed in lab packs under the alternative lab pack treatment standards of subsection 3 of section 33-24-05-282: D009, F019, K003, K004, K005, K006, K062, K071, K100, K106, P010, P011, P012, P076, P078, U134, U151.

~~P001, P002, P003, P004, P005, P006, P007, P008, P009, P013, P014, P015, P016, P017, P018, P020, P021, P022, P023, P024, P026, P027, P028, P029, P030, P031, P033, P034, P036, P037, P038, P039, P040, P041, P042, P043, P044, P045, P046, P047, P048, P049, P050, P051, P054, P056, P057, P058, P059, P060, P062, P063, P064, P065, P066, P067, P068, P069, P070, P071, P072, P073, P074, P075, P077, P081, P082, P084, P085, P087, P088, P089, P092, P093, P094, P095, P096, P097, P098, P099, P101, P102, P103, P104, P105, P106, P108, P109, P110, P111, P112, P113, P114, P115, P116, P118, P119, P120, P121, P122, P123.~~

~~U001, U002, U003, U004, U005, U006, U007, U008, U009, U010, U011, U012, U014, U015, U016, U017, U018, U019, U020, U021, U022, U023, U024, U025, U026, U027, U028, U029, U030, U031, U032, U033, U034, U035, U036, U037, U038, U039, U041, U042, U043, U044, U045, U046, U047, U048, U049, U050, U051, U052, U053, U055, U056, U057, U058, U059, U060, U061, U062, U063, U064, U066, U067, U068, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U085, U086, U087, U088, U089, U090, U091, U092, U093, U094, U095, U096, U097, U098, U099, U101, U102, U103, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U136, U137, U138, U140, U141, U142, U143, U144, U145, U146, U147, U148, U149, U150, U152, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U163, U164, U165, U166, U167, U168, U169, U170, U171, U172, U173, U174, U176, U177, U178, U179, U180, U181, U182, U183, U184, U185, U186, U187, U188, U189, U190, U191, U192, U193, U194, U196, U197, U200, U201, U202, U203, U204, U205, U206, U207, U208, U209, U210, U211, U213, U214, U215, U216, U217, U218, U219, U220, U221, U222, U223, U225, U226, U227, U228, U234, U235, U236, U237, U238, U239, U240, U243, U244, U246, U247, U248, U249.~~

~~F001, F002, F003, F004, F005, F006, F010, F020, F021, F022, F023, F024, F025, F026, F027, F028, F039.~~

~~K001, K002, K008, K009, K010, K011, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040, K041, K042, K043, K044, K045, K046, K047, K048, K049, K050, K051, K052, K060, K061, K069, K071, K073, K083, K084, K085, K086, K087, K093, K094, K095, K096, K097, K098, K099, K101, K102, K103, K104, K105, K113, K114, K115, K116.~~

~~D001, D002, D003, D004, D005, D006, D007, D008, D010, D011, D012, D013, D014, D015, D016, D017.~~

~~APPENDIX IX~~
~~ORGANIC LAB PACKS~~ APPENDIX IX [RESERVED]

~~Hazardous waste with the following Hazardous Waste Code No. may be placed in an "organic" or "Appendix IX" lab pack:~~

~~P001, P002, P003, P004, P005, P007, P008, P009, P014, P016, P017, P018, P020, P021, P022, P023, P024, P026, P027, P028, P030, P031, P033, P034, P037, P039, P040, P041, P042, P043, P044, P045, P046, P047, P048, P049, P050, P051, P054, P057, P058, P059, P060, P062, P063, P064, P066, P067, P068, P069, P070, P071, P072, P075, P077, P081, P082, P084, P085, P088, P089, P093, P094, P095, P097, P098, P101, P102, P105, P106, P108, P109, P111, P112, P116, P118, P123.~~

~~U001, U002, U003, U004, U005, U006, U007, U008, U009, U010, U011, U012, U014, U015, U016, U017, U018, U019, U020, U021, U022, U023, U024, U025, U026, U027, U028, U029, U030, U031, U033, U034, U035, U036, U037, U038, U039, U041, U042, U043, U044, U045, U046, U047, U048, U049, U050, U052, U053, U055, U056, U057, U058, U059, U060, U061, U062, U063, U064, U066, U067, U068, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U085, U086, U087, U088, U089, U090, U091, U092, U093, U094, U095, U096, U097, U098, U099, U101, U102, U103, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U135, U137, U138, U140, U141, U142, U143, U147, U148, U149, U150, U152, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U163, U164, U165, U166, U167, U168, U169, U170, U171, U172, U173, U174, U176, U177, U178, U179, U180, U181, U182, U183, U184, U185, U186, U187, U188, U189, U190, U191, U192, U193, U194, U196, U197, U200, U201, U202, U203, U206, U207, U208, U209, U210, U211, U213, U218, U219, U220, U221, U222, U223, U225, U226, U227, U228, U234, U235, U236, U237, U238, U239, U240, U243, U244, U246, U247, U248, U249.~~

~~F001, F002, F003, F004, F005, F010, F020, F021, F022, F023, F025, F026, F027, F028.~~

~~K009, K010, K011, K013, K014, K016, K017, K018, K019, K020, K023, K024, K025, K026, K027, K029, K030, K032, K033, K034, K035, K036, K037, K038, K039, K040, K041, K042, K043, K044, K045, K047, K060, K073, K085, K093, K094, K095, K096, K097, K098, K099, K103, K104, K105, K113, K114, K116.~~

~~D001, D012, D013, D014, D015, D016, D017.~~

APPENDIX X
RECOMMENDED TECHNOLOGIES TO ACHIEVE DEACTIVATION OF CHARACTERISTICS IN SECTION 33-24-05-282

The treatment standard for many subcategories of D001, D002, and D003 wastes as well as for K044, K045, and K047 wastes is tested in 33-24-05-282 simply as "Deactivation to remove the characteristics of ignitability, corrosivity, and reactivity." The environmental protection agency has determined that many technologies, when used alone or in combination, can achieve this standard. The following appendix presents a partial list of these technologies, utilizing the five letter technology codes established in Section 33-24-05-282 table 1. Use of these specific technologies is not mandatory and does not preclude direct reuse, recovery, and/or the use of other pretreatment technologies provided deactivation is achieved and these alternative methods are not performed in units designated as land disposal.

Waste Code/Subcategory	Nonwastewaters	Wastewaters
D001 Ignitable Liquids based on 33-24-02-11,1.,a.-Low TOC Nonwastewater Subcategory (containing 1% to <10% TOC).	RORGS	n.a.
	INCIN	
	WETOX	
	CHOXD	
	BIODG	
D001 Ignitable Liquids based on 33-24-02-11,1.,a.-Ignitable Wastewater Subcategory (containing <1% TOC).	n.a.	RORGS
		INCIN
		WETOX
		CHOXD
		BIODG
D001 Compressed Gases based on 33-24-02-11,1.,c.	RCGAS	n.a.
	INCIN	
	FSUBS	
	ADGAS fb. INCIN	
	ADGAS fb. (CHOXD; or CHRED).	
D001 Ignitable Reactives based on 33-24-02-11,1.,b.	WTRRX	n.a.
	CHOXD	
	CHRED	
	STABL	
	INCIN	
D001 Ignitable Oxidizers based on 33-24-02-11,1.,d.	CHRED	CHRED
	INCIN	INCIN
D002 Acid Subcategory based on 33-24-02-12,1.,a. with pH less than or equal to 2	RCORR	NEUTR
	NEUTR	INCIN
	INCIN	
D002 Alkaline Subcategory based on 33-24-02-12,1.,a. with pH greater than or equal to 12.5	NEUTR	NEUTR
	INCIN	INCIN
D002 Other Corrosives based on 33-24-02-12,1.,b.	CHOXD	CHOXD
	CHRED	CHRED
	INCIN	INCIN
	STABL	
D003 Water Reactives based on 33-24-02-13,1.,b.,c., and d.	INCIN	n.a.
	WTRRX	
	CHOXD	
	CHRED	
D003 Reactive Sulfides based on 33-24-02-13,1.,e.	CHOXD	CHOXD
	CHRED	CHRED
	INCIN	BIODG
	STABL	INCIN
D003 Explosives based on 33-24-02-13,1.,f.,g., and h.	INCIN	INCIN
	CHOXD	CHOXD
	CHRED	CHRED
		BIODG
		CARBN
D003 Other Reactives based on 33-24-02-13,1.,a.	INCIN	INCIN
	CHOXD	CHOXD
	CHRED	CHRED
		BIODG
		CARBN
K044 Wastewater treatment sludges from the manufacturing and processing of explosives.	CHOXD	CHOXD
	CHRED	CHRED
	INCIN	BIODG
		CARBN
		INCIN
K045 Spent carbon from the treatment of wastewaters containing explosives.	CHOXD	CHOXD
	CHRED	CHRED
	INCIN	BIODG
		CARBN
		INCIN
K047 Pink/red water from TNT operations.	CHOXD	CHOXD
	CHRED	CHRED
	INCIN	BIODG
		CARBN
		INCIN

Note: "n.a." stands for "not applicable;" "fb." stands for "followed by."

APPENDIX XI

Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List

Waste Code	Waste Category	Effective Date
California list	Liquid hazardous wastes, including free liquids associated with solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/l or certain metals or compounds of these metals greater than or equal to the prohibition levels	July 8, 1987.
California list	Liquid (aqueous) hazardous wastes having a pH less than or equal to 2	July 8, 1987.
California list	Dilute HOC wastewaters, defined as HOC-waste mixtures that are primarily water and that contain greater than or equal to 1,000 mg/l but less than 10,000 mg/l	July 8, 1987.
California list	Liquid hazardous waste containing PCBs greater than or equal to 50 ppm	July 8, 1987.
California list	Other liquid and nonliquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg	Nov. 8, 1988.
D001	All	Aug. 8, 1990.
D002	All	Aug. 8, 1990.
D003	All	Aug. 8, 1990.
D004	Wastewater	Aug. 8, 1990.
D004	Nonwastewater	May 8, 1992.
D005	All	Aug. 8, 1990.
D006	All	Aug. 8, 1990.
D007	All	Aug. 8, 1990.
D008	Lead materials before secondary smelting	May 8, 1992.
D008	All others	Aug. 8, 1990.
D009	Nonwastewater	May 8, 1992.
D009	All others	Aug. 8, 1990.
D010	All	Aug. 8, 1990.
D011	All	Aug. 8, 1990.
D012	All	Aug. 8, 1990.
D013	All	Aug. 8, 1990.
D014	All	Aug. 8, 1990.
D015	All	Aug. 8, 1990.
D016	All	Aug. 8, 1990.
D017	All	Aug. 8, 1990.
F001	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
F001	All others	Nov. 8, 1986.
F002 (1,1,2-trichloroethane)	Wastewater and Nonwastewater	Aug. 8, 1990.
F002	Small quantity generators, CERCLA response/Resource Conservation and Recovery Act corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
F002	All others	Nov. 8, 1986.
F003	Small quantity generators, CERCLA response/Resource Conservation and Recovery Act corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
F003	All others	Nov. 8, 1986.
F004	Small quantity generators, CERCLA response/Resource Conservation and Recovery Act corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
F004	All others	Nov. 8, 1986.
F005 (benzene, 2-ethoxy ethanol, 2-nitropropane)	Wastewater and Nonwastewater	Aug. 8, 1990.
F005	Small quantity generators, CERCLA response/Resource Conservation and Recovery Act corrective action, initial generator's solvent-water mixtures, solvent-containing sludges and solids	Nov. 8, 1988.
F005	All others	Nov. 8, 1986.
F006	Wastewater	Aug. 8, 1990.
F006	Nonwastewater	Aug. 8, 1988.
F006 (cyanides)	Nonwastewater	July 8, 1989.
F007	All	July 8, 1989.
F008	All	July 8, 1989.
F009	All	July 8, 1989.
F010	All	June 8, 1989.
F011 (cyanides)	Nonwastewater	Dec. 8, 1989.
F011	All others	July 8, 1989.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
F012 (cyanides)	Nonwastewater	Dec. 8, 1989.
F012	All others	July 8, 1989.
F019	All	Aug. 8, 1990.
F020	All	Nov. 8, 1988.
F021	All	Nov. 8, 1988.
F022	All	Nov. 8, 1988.
F023	All	Nov. 8, 1988.
F024 (metals)	Wastewater	June 8, 1989.
F024 (metals)	Nonwastewater	Aug. 8, 1990.
F024[b]	All others	June 8, 1989.
F025	All	Aug. 8, 1990.
F026	All	Nov. 8, 1988.
F027	All	Nov. 8, 1988.
F028	All	Nov. 8, 1988.
F039	Wastewater	Aug. 8, 1990.
F039	Nonwastewater	May 8, 1992.
K001 (organics)[b]	All	Aug. 8, 1988.
K001	All others	Aug. 8, 1988.
K002	All	Aug. 8, 1990.
K003	All	Aug. 8, 1990.
K004	Wastewater	Aug. 8, 1990.
K004[c]	Nonwastewater	Aug. 8, 1988.
K005	Wastewater	Aug. 8, 1990.
K005[c]	Nonwastewater	June 8, 1989.
K006	All	Aug. 8, 1990.
K007	Wastewater	Aug. 8, 1990.
K007[c]	Nonwastewater	June 8, 1989.
K008	Wastewater	Aug. 8, 1990.
K008[c]	Nonwastewater	Aug. 8, 1988.
K009	All	June 8, 1989.
K010	All	June 8, 1989.
K011	Wastewater	Aug. 8, 1990.
K011	Nonwastewater	June 8, 1989.
K013	Wastewater	Aug. 8, 1990.
K013	Nonwastewater	June 8, 1989.
K014	Wastewater	Aug. 8, 1990.
K014	Nonwastewater	June 8, 1989.
K015	Wastewater	Aug. 8, 1988.
K015	Nonwastewater	Aug. 8, 1990.
K016	All	Aug. 8, 1988.
K017	All	Aug. 8, 1990.
K018	All	Aug. 8, 1988.
K019	All	Aug. 8, 1988.
K020	All	Aug. 8, 1988.
K021	Wastewater	Aug. 8, 1990.
K021[c]	Nonwastewater	Aug. 8, 1988.
K022	Wastewater	Aug. 8, 1990.
K022	Nonwastewater	Aug. 8, 1988.
K023	All	June 8, 1989.
K024	All	Aug. 8, 1988.
K025	Wastewater	Aug. 8, 1990.
K025[c]	Nonwastewater	Aug. 8, 1988.
K026	All	Aug. 8, 1990.
K027	All	June 8, 1989.
K028 (metals)	Nonwastewater	Aug. 8, 1990.
K028	All others	June 8, 1989.
K029	Wastewater	Aug. 8, 1990.
K029	Nonwastewater	June 8, 1989.
K030	All	Aug. 8, 1988.
K031	Wastewater	Aug. 8, 1990.
K031	Nonwastewater	May 8, 1992.
K032	All	Aug. 8, 1990.
K033	All	Aug. 8, 1990.
K034	All	Aug. 8, 1990.
K035	All	Aug. 8, 1990.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
K036	Wastewater	June 8, 1989.
K036[c]	Nonwastewater	Aug. 8, 1988.
K037[b]	Wastewater	Aug. 8, 1988.
K037	Nonwastewater	Aug. 8, 1988.
K038	All	June 8, 1989.
K039	All	June 8, 1989.
K040	All	June 8, 1989.
K041	All	Aug. 8, 1990.
K042	All	Aug. 8, 1990.
K043	All	June 8, 1989.
K044[c]	All	Aug. 8, 1988.
K045[c]	All	Aug. 8, 1988.
K046 (Nonreactive)	Nonwastewater	Aug. 8, 1988.
K046	All others	Aug. 8, 1990.
K047[c]	All	Aug. 8, 1988.
K048	Wastewater	Aug. 8, 1990.
K048	Nonwastewater	Nov. 8, 1990.
K049	Wastewater	Aug. 8, 1990.
K049	Nonwastewater	Nov. 8, 1990.
K050	Wastewater	Aug. 8, 1990.
K050	Nonwastewater	Nov. 8, 1990.
K051	Wastewater	Aug. 8, 1990.
K051	Nonwastewater	Nov. 8, 1990.
K052	Wastewater	Aug. 8, 1990.
K052	Nonwastewater	Nov. 8, 1990.
K060	Wastewater	Aug. 8, 1990.
K060[c]	Nonwastewater	Aug. 8, 1988.
K061	Wastewater	Aug. 8, 1990.
K061 (low zinc) (interim standard for high zinc remains in effect until August 7, 1991).	Nonwastewater	Aug. 8, 1988.
K062	All	Aug. 8, 1988.
K069 (Non-Calcium Sulfate)[c]	Nonwastewater	Aug. 8, 1988.
K069	All others	Aug. 8, 1990.
K071	All	Aug. 8, 1990.
K073	All	Aug. 8, 1990.
K083	All	Aug. 8, 1990.
K084	Wastewater	Aug. 8, 1990.
K084	Nonwastewater	May 8, 1992.
K085	All	Aug. 8, 1990.
K086 (organics)[b]	All	Aug. 8, 1988.
K086	All others	Aug. 8, 1988.
K087	All	Aug. 8, 1988.
K093	All	June 8, 1989.
K094	All	June 8, 1989.
K095	Wastewater	Aug. 8, 1990.
K095	Nonwastewater	June 8, 1989.
K096	Wastewater	Aug. 8, 1990.
K096	Nonwastewater	June 8, 1989.
K097	All	Aug. 8, 1990.
K098	All	Aug. 8, 1990.
K099	All	Aug. 8, 1988.
K100	Wastewater	Aug. 8, 1990.
K100[c]	Nonwastewater	Aug. 8, 1988.
K101 (organics)	Wastewater	Aug. 8, 1988.
K101 (metals)	Wastewater	Aug. 8, 1990.
K101 (organics)	Nonwastewater	Aug. 8, 1988.
K101 (metals)	Nonwastewater	May 8, 1992.
K102 (organics)	Wastewater	Aug. 8, 1988.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
K102 (metals)	Wastewater	Aug. 8, 1990.
K102 (organics)	Nonwastewater	Aug. 8, 1988.
K102 (metals)	Nonwastewater	May 8, 1992.
K103	All	Aug. 8, 1988.
K104	All	Aug. 8, 1988.
K105	All	Aug. 8, 1990.
K106	Wastewater	Aug. 8, 1990.
K106	Nonwastewater	May 8, 1992.
K113	All	June 8, 1989.
K114	All	June 8, 1989.
K115	All	June 8, 1989.
K116	All	June 8, 1989.
P001	All	Aug 8, 1990.
P002	All	Aug. 8, 1990.
P003	All	Aug. 8, 1990.
P004	All	Aug. 8, 1990.
P005	All	Aug. 8, 1990.
P006	All	Aug. 8, 1990.
P007	All	Aug. 8, 1990.
P008	All	Aug. 8, 1990.
P009	All	Aug. 8, 1990.
P010	Wastewater	Aug. 8, 1990.
P010	Nonwastewater	May 8, 1992.
P011	Wastewater	Aug. 8, 1990.
P011	Nonwastewater	May 8, 1992.
P012	Wastewater	Aug. 8, 1990.
P012	Nonwastewater	May 8, 1992.
P013 (barium)	Nonwastewater	Aug. 8, 1990.
P013	All others	June 8, 1989.
P014	All	Aug. 8, 1990.
P015	All	Aug. 8, 1990.
P016	All	Aug. 8, 1990.
P017	All	Aug. 8, 1990.
P018	All	Aug. 8, 1990.
P020	All	Aug. 8, 1990.
P021	All	June 8, 1989.
P022	All	Aug. 8, 1990.
P023	All	Aug. 8, 1990.
P024	All	Aug. 8, 1990.
P026	All	Aug. 8, 1990.
P027	All	Aug. 8, 1990.
P028	All	Aug. 8, 1990.
P029	All	June 8, 1989.
P030	All	June 8, 1989.
P031	All	Aug. 8, 1990.
P033	All	Aug. 8, 1990.
P034	All	Aug. 8, 1990.
P036	Wastewater	Aug. 8, 1990.
P036	Nonwastewater	May 8, 1992.
P037	All	Aug. 8, 1990.
P038	Wastewater	Aug. 8, 1990.
P038	Nonwastewater	May 8, 1992.
P039	All	June 8, 1989.
P040	All	June 8, 1989.
P041	All	June 8, 1989.
P042	All	Aug. 8, 1990.
P043	All	June 8, 1989.
P044	All	June 8, 1989.
P045	All	Aug. 8, 1990.
P046	All	Aug. 8, 1990.
P047	All	Aug. 8, 1990.
P048	All	Aug. 8, 1990.
P049	All	Aug. 8, 1990.
P050	All	Aug. 8, 1990.
P051	All	Aug. 8, 1990.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
P054	All	Aug. 8, 1990.
P056	All	Aug. 8, 1990.
P057	All	Aug. 8, 1990.
P058	All	Aug. 8, 1990.
P059	All	Aug. 8, 1990.
P060	All	Aug. 8, 1990.
P062	All	June 8, 1989.
P063	All	June 8, 1989.
P064	All	Aug. 8, 1990.
P065	Wastewater	Aug. 8, 1990.
P065	Nonwastewater	May 8, 1992.
P066	All	Aug. 8, 1990.
P067	All	Aug. 8, 1990.
P068	All	Aug. 8, 1990.
P069	All	Aug. 8, 1990.
P070	All	Aug. 8, 1990.
P071	All	June 8, 1989.
P072	All	Aug. 8, 1990.
P073	All	Aug. 8, 1990.
P074	All	June 8, 1989.
P075	All	Aug. 8, 1990.
P076	All	Aug. 8, 1990.
P077	All	Aug. 8, 1990.
P078	All	Aug. 8, 1990.
P081	All	Aug. 8, 1990.
P082	All	Aug. 8, 1990.
P084	All	Aug. 8, 1990.
P085	All	June 8, 1989.
P087	All	May 8, 1992.
P088	All	Aug. 8, 1990.
P089	All	June 8, 1989.
P092	Wastewater	Aug. 8, 1990.
P092	Nonwastewater	May 8, 1992.
P093	All	Aug. 8, 1990.
P094	All	June 8, 1989.
P095	All	Aug. 8, 1990.
P096	All	Aug. 8, 1990.
P097	All	June 8, 1989.
P098	All	June 8, 1989.
P099 (silver)	Wastewater	Aug. 8, 1990.
P099	All others	June 8, 1989.
P101	All	Aug. 8, 1990.
P102	All	Aug. 8, 1990.
P103	All	Aug. 8, 1990.
P104 (silver)	Wastewater	Aug. 8, 1990.
P104	All others	June 8, 1989.
P105	All	Aug. 8, 1990.
P106	All	June 8, 1989.
P108	All	Aug. 8, 1990.
P109	All	June 8, 1989.
P110	All	Aug. 8, 1990.
P111	All	June 8, 1989.
P112	All	Aug. 8, 1990.
P113	All	Aug. 8, 1990.
P114	All	Aug. 8, 1990.
P115	All	Aug. 8, 1990.
P116	All	Aug. 8, 1990.
P118	All	Aug. 8, 1990.
P119	All	Aug. 8, 1990.
P120	All	Aug. 8, 1990.
P121	All	June 8, 1989.
P122	All	Aug. 8, 1990.
P123	All	Aug. 8, 1990.
U001	All	Aug. 8, 1990.
U002	All	Aug. 8, 1990.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
U003	All	Aug. 8, 1990.
U004	All	Aug. 8, 1990.
U005	All	Aug. 8, 1990.
U006	All	Aug. 8, 1990.
U007	All	Aug. 8, 1990.
U008	All	Aug. 8, 1990.
U009	All	Aug. 8, 1990.
U010	All	Aug. 8, 1990.
U011	All	Aug. 8, 1990.
U012	All	Aug. 8, 1990.
U014	All	Aug. 8, 1990.
U015	All	Aug. 8, 1990.
U016	All	Aug. 8, 1990.
U017	All	Aug. 8, 1990.
U018	All	Aug. 8, 1990.
U019	All	Aug. 8, 1990.
U020	All	Aug. 8, 1990.
U021	All	Aug. 8, 1990.
U022	All	Aug. 8, 1990.
U023	All	Aug. 8, 1990.
U024	All	Aug. 8, 1990.
U025	All	Aug. 8, 1990.
U026	All	Aug. 8, 1990.
U027	All	Aug. 8, 1990.
U028	All	June 8, 1989.
U029	All	Aug. 8, 1990.
U030	All	Aug. 8, 1990.
U031	All	Aug. 8, 1990.
U032	All	Aug. 8, 1990.
U033	All	Aug. 8, 1990.
U034	All	Aug. 8, 1990.
U035	All	Aug. 8, 1990.
U036	All	Aug. 8, 1990.
U037	All	Aug. 8, 1990.
U038	All	Aug. 8, 1990.
U039	All	Aug. 8, 1990.
U041	All	Aug. 8, 1990.
U042	All	Aug. 8, 1990.
U043	All	Aug. 8, 1990.
U044	All	Aug. 8, 1990.
U045	All	Aug. 8, 1990.
U046	All	Aug. 8, 1990.
U047	All	Aug. 8, 1990.
U048	All	Aug. 8, 1990.
U049	All	Aug. 8, 1990.
U050	All	Aug. 8, 1990.
U051	All	Aug. 8, 1990.
U052	All	Aug. 8, 1990.
U053	All	Aug. 8, 1990.
U055	All	Aug. 8, 1990.
U056	All	Aug. 8, 1990.
U057	All	Aug. 8, 1990.
U058	All	June 8, 1989.
U059	All	Aug. 8, 1990.
U060	All	Aug. 8, 1990.
U061	All	Aug. 8, 1990.
U062	All	Aug. 8, 1990.
U063	All	Aug. 8, 1990.
U064	All	Aug. 8, 1990.
U066	All	Aug. 8, 1990.
U067	All	Aug. 8, 1990.
U068	All	Aug. 8, 1990.
U069	All	June 8, 1989.
U070	All	Aug. 8, 1990.
U071	All	Aug. 8, 1990.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
U072	All	Aug. 8, 1990.
U073	All	Aug. 8, 1990.
U074	All	Aug. 8, 1990.
U075	All	Aug. 8, 1990.
U076	All	Aug. 8, 1990.
U077	All	Aug. 8, 1990.
U078	All	Aug. 8, 1990.
U079	All	Aug. 8, 1990.
U080	All	Aug. 8, 1990.
U081	All	Aug. 8, 1990.
U082	All	Aug. 8, 1990.
U083	All	Aug. 8, 1990.
U084	All	Aug. 8, 1990.
U085	All	Aug. 8, 1990.
U086	All	Aug. 8, 1990.
U087	All	June 8, 1989.
U088	All	June 8, 1989.
U089	All	Aug. 8, 1990.
U090	All	Aug. 8, 1990.
U091	All	Aug. 8, 1990.
U092	All	Aug. 8, 1990.
U093	All	Aug. 8, 1990.
U094	All	Aug. 8, 1990.
U095	All	Aug. 8, 1990.
U096	All	Aug. 8, 1990.
U097	All	Aug. 8, 1990.
U098	All	Aug. 8, 1990.
U099	All	Aug. 8, 1990.
U101	All	Aug. 8, 1990.
U102	All	June 8, 1989.
U103	All	Aug. 8, 1990.
U105	All	Aug. 8, 1990.
U106	All	Aug. 8, 1990.
U107	All	June 8, 1989.
U108	All	Aug. 8, 1990.
U109	All	Aug. 8, 1990.
U110	All	Aug. 8, 1990.
U111	All	Aug. 8, 1990.
U112	All	Aug. 8, 1990.
U113	All	Aug. 8, 1990.
U114	All	Aug. 8, 1990.
U115	All	Aug. 8, 1990.
U116	All	Aug. 8, 1990.
U117	All	Aug. 8, 1990.
U118	All	Aug. 8, 1990.
U119	All	Aug. 8, 1990.
U120	All	Aug. 8, 1990.
U121	All	Aug. 8, 1990.
U122	All	Aug. 8, 1990.
U123	All	Aug. 8, 1990.
U124	All	Aug. 8, 1990.
U125	All	Aug. 8, 1990.
U126	All	Aug. 8, 1990.
U127	All	Aug. 8, 1990.
U128	All	Aug. 8, 1990.
U129	All	Aug. 8, 1990.
U130	All	Aug. 8, 1990.
U131	All	Aug. 8, 1990.
U132	All	Aug. 8, 1990.
U133	All	Aug. 8, 1990.
U134	All	Aug. 8, 1990.
U135	All	Aug. 8, 1990.
U136	Wastewater	Aug. 8, 1990.
U136	Nonwastewater	May 8, 1992.
U137	All	Aug. 8, 1990.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
U138	All	Aug. 8, 1990.
U140	All	Aug. 8, 1990.
U141	All	Aug. 8, 1990.
U142	All	Aug. 8, 1990.
U143	All	Aug. 8, 1990.
U144	All	Aug. 8, 1990.
U145	All	Aug. 8, 1990.
U146	All	Aug. 8, 1990.
U147	All	Aug. 8, 1990.
U148	All	Aug. 8, 1990.
U149	All	Aug. 8, 1990.
U150	All	Aug. 8, 1990.
U151	Wastewater	Aug. 8, 1990.
U151	Nonwastewater	May 8, 1992.
U152	All	Aug. 8, 1990.
U153	All	Aug. 8, 1990.
U154	All	Aug. 8, 1990.
U155	All	Aug. 8, 1990.
U156	All	Aug. 8, 1990.
U157	All	Aug. 8, 1990.
U158	All	Aug. 8, 1990.
U159	All	Aug. 8, 1990.
U160	All	Aug. 8, 1990.
U161	All	Aug. 8, 1990.
U162	All	Aug. 8, 1990.
U163	All	Aug. 8, 1990.
U164	All	Aug. 8, 1990.
U165	All	Aug. 8, 1990.
U166	All	Aug. 8, 1990.
U167	All	Aug. 8, 1990.
U168	All	Aug. 8, 1990.
U169	All	Aug. 8, 1990.
U170	All	Aug. 8, 1990.
U171	All	Aug. 8, 1990.
U172	All	Aug. 8, 1990.
U173	All	Aug. 8, 1990.
U174	All	Aug. 8, 1990.
U176	All	Aug. 8, 1990.
U177	All	Aug. 8, 1990.
U178	All	Aug. 8, 1990.
U179	All	Aug. 8, 1990.
U180	All	Aug. 8, 1990.
U181	All	Aug. 8, 1990.
U182	All	Aug. 8, 1990.
U183	All	Aug. 8, 1990.
U184	All	Aug. 8, 1990.
U185	All	Aug. 8, 1990.
U186	All	Aug. 8, 1990.
U187	All	Aug. 8, 1990.
U188	All	Aug. 8, 1990.
U189	All	Aug. 8, 1990.
U190	All	June 8, 1989.
U191	All	Aug. 8, 1990.
U192	All	Aug. 8, 1990.
U193	All	Aug. 8, 1990.
U194	All	Aug. 8, 1990.
U196	All	Aug. 8, 1990.
U197	All	Aug. 8, 1990.
U200	All	Aug. 8, 1990.
U201	All	Aug. 8, 1990.
U202	All	Aug. 8, 1990.
U203	All	Aug. 8, 1990.
U204	All	Aug. 8, 1990.
U205	All	Aug. 8, 1990.
U206	All	Aug. 8, 1990.

APPENDIX XI (continued)
Table 1. Effective Dates of Surface Disposed Wastes (nonsoil and debris) Regulated in the LDRS[a] - Comprehensive List.

Waste Code	Waste Category	Effective Date
U207	All	Aug. 8, 1990.
U208	All	Aug. 8, 1990.
U209	All	Aug. 8, 1990.
U210	All	Aug. 8, 1990.
U211	All	Aug. 8, 1990.
U213	All	Aug. 8, 1990.
U214	All	Aug. 8, 1990.
U215	All	Aug. 8, 1990.
U216	All	Aug. 8, 1990.
U217	All	Aug. 8, 1990.
U218	All	Aug. 8, 1990.
U219	All	Aug. 8, 1990.
U220	All	Aug. 8, 1990.
U221	All	June 8, 1989.
U222	All	Aug. 8, 1990.
U223	All	June 8, 1989.
U225	All	Aug. 8, 1990.
U226	All	Aug. 8, 1990.
U227	All	Aug. 8, 1990.
U228	All	Aug. 8, 1990.
U234	All	Aug. 8, 1990.
U235	All	June 8, 1989.
U236	All	Aug. 8, 1990.
U237	All	Aug. 8, 1990.
U238	All	Aug. 8, 1990.
U239	All	Aug. 8, 1990.
U240	All	Aug. 8, 1990.
U243	All	Aug. 8, 1990.
U244	All	Aug. 8, 1990.
U246	All	Aug. 8, 1990.
U247	All	Aug. 8, 1990.
U248	All	Aug. 8, 1990.
U249	All	Aug. 8, 1990.

FOOTNOTE: [a]This table does not include mixed radioactive wastes (from the First, Second,and Third rules) which are receiving a national capacity variance until May 8, 1992, for all applicable treatment technologies. This table also does not include contaminated soil and debris wastes.

FOOTNOTE: [b]The standard has been revised in the Third Third Final Rule.

FOOTNOTE: [c]No land disposal standard has been revised in the Third Third Final Rule.

APPENDIX XI (continued)

Table 2. Summary of Effective Dates of Land Disposal Restrictions for Contaminated Soil and Debris (CSD).

Restricted Hazardous Waste in CSD	Effective Date
1. Solvent-(F001-F005) and dioxin-(F020-F023 and F026-F028) containing soil and debris from CERCLA response of Resource Conservation and Recovery Act corrective actions.	Nov. 8, 1990.
2. Soil and debris not from CERCLA response or RCRA corrective actions contaminated with less than 1% total solvents (F001-F005) or dioxins (F020-F023 and F026-F028).	Nov. 8, 1988.
3. Soil and debris contaminated with California list HOCs from CERCLA response or RCRA corrective actions.	Nov. 8, 1990.
4. Soil and debris contaminated with California list HOCs not from CERCLA response or RCRA corrective actions.	July 8, 1989.
5. All soil and debris contaminated with First Third wastes for which treatment standards are based on incineration.	Aug. 8, 1990.
6. All soil and debris contaminated with Second Third wastes for which treatment standards are based on incineration.	June 8, 1991.
7. All soil and debris contaminated with Third Third wastes or, First or Second Third "soft hammer" wastes which had treatment standards promulgated in the Third Third rule, for which treatment standards are based on incineration, vitrification, or mercury retorting, acid leaching followed by chemical precipitation, or thermal recovery of metals, as well as all inorganic solids debris contaminated with D004-D011 wastes, and all soil and debris contaminated with mixed RCRA/radioactive wastes.	May 8, 1992.

1. Appendix ~~VII~~ XI is provided for the convenience of the reader.

2. Contaminated Soil and Debris Rule will be promulgated in the future.

APPENDIX XII
Ground Water Monitoring List[1]

Common Name[2]	CAS RN[3]	Chemical Abstracts Service Index Name[4]	Suggested Methods[5]	PQL (µg/L)[6]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100	200
			8270	10
Acenaphthylene	208-96-8	Acenaphthylene	8100	200
			8270	10
Acetone	67-64-1	2-Propanone	8240	100
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270	10
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	10
Acrolein	107-02-8	2-Propenal	8030	5
			8240	5
Acrylonitrile	107-13-1	2-Propenenitrile	8030	5
			8240	5
Aldrin	309-00-2	1,4:5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexachloro-, 1,1,4,4a,5,8,8a-hexahydro- (1a,4a,4ab,5a,8a,8ab)-	8080	0.05
			8270	10
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010	5
			8240	100
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine	8270	10
Aniline	62-53-3	Benzenamine	8270	10
Anthracene	120-12-7	Anthracene	8100	200
			8270	10
Antimony	(Total)	Antimony	6010	300
			7040	2,000
			7041	30
Aramite	140-57-8	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	8270	10
Arsenic	(Total)	Arsenic	6010	500
			7060	10
			7061	20
Barium	(Total)	Barium	6010	20
			7080	1,000
Benzene	71-43-2	Benzene	8020	2
			8240	5
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene	8100	200
			8270	10
Benzo[b]fluoranthene	205-99-2	Benz[e]acephenanthrylene	8100	200
			8270	10
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene	8100	200
			8270	10
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100	200
			8270	10
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100	200
			8270	10
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20
Beryllium	(Total)	Beryllium	6010	3
			7090	50
			7091	2
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5b,6b)-	8080	0.05
			8250	10
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2b,3a,4b,5a,6b)-	8080	0.05
			8250	40
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2a,3a,4b,5a,6b)-	8080	0.1
			8250	30
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1a,2a,3b,4a,5a,6b)-	8080	0.05
			8250	10
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	8270	10
Bis(2-chloroethyl)ether	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	8270	10
Bis(2-chloro-1-methylethyl) ether; 2,2'-Dichlorodiisopropyl ether	108-60-1	Propane, 2,2'-oxybis[1-chloro-	8010	100
			8270	10
Bis(2-ethylhexyl)phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester	8060	20
			8270	10
Bromodichloromethane	75-27-4	Methane, bromodichloro-	8010	1
			8240	5
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-	8010	2
			8240	5
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8270	10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	8060	5
			8270	10
Cadmium	(Total)	Cadmium	6010	40
			7130	50
			7131	1
Carbon disulfide	75-15-0	Carbon disulfide	8240	5
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010	1
			8240	5
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	8080	0.1
			8250	10
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-	8270	20
Chlorobenzene	108-90-7	Benzene, chloro-	8010	2
			8020	2
			8240	5
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-a-(4-chlorophenyl)-a-hydroxy, ethyl ester	8270	10
p-Chloro-m-cresol	59-50-7	Phenol, 4-chloro-3-methyl-	8040	5
			8270	20
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-	8010	5
			8240	10

APPENDIX XII (Continued)
Ground Water Monitoring List[1]

Common Name[2]	CAS RN[3]	Chemical Abstracts Service Index Name[4]	Suggested Methods[5]	PQL (µg/L)[6]
Chloroform	67-66-3	Methane, trichloro-	8010	0.5
			8240	5
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-	8120	10
			8270	10
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040	5
			8270	10
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8270	10
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010	50
			8240	5
Chromium	(Total)	Chromium	6010	70
			7910	500
			7191	10
Chrysene	218-01-9	Chrysene	8100	200
			8270	10
Cobalt	(Total)	Cobalt	6010	70
			7200	500
			7201	10
Copper	(Total)	Copper	6010	60
			7210	200
m-Cresol	108-39-4	Phenol, 3-methyl-	8270	10
o-Cresol	95-48-7	Phenol, 2-methyl-	8270	10
p-Cresol	106-44-5	Phenol, 4-methyl-	8270	10
Cyanide	57-12-5	Cyanide	9010	40
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150	10
4,4'-DDD	72-54-8	Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	8080	0.1
			8270	10
4,4'-DDE	72-55-9	Benzene 1,1'-(dichloroethylidene)bis[4-chloro-	8080	0.05
			8270	10
4,4'-DDT	50-29-3	Benzene 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	8080	0.1
			8270	10
Diallate	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S- (2,3-dichloro-2-propenyl) ester	8270	10
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene	8100	200
			8270	10
Dibenzofuran	132-64-9	Dibenzofuran	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro-	8010	1
			8240	5
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro-	8010	100
			8240	5
			8270	10
1,2-Dibromoethane; Ethylene dibromide	106-93-4	Ethane, 1,2-dibromo-	8010	10
			8240	5
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060	5
			8270	10
o-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010	2
			8020	5
			8120	10
			8270	10
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-	8010	5
			8020	5
			8120	10
			8270	10
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-	8010	2
			8020	5
			8120	15
			8270	10
3,3'-Dichlorobenzidine	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8240	5
Dichlorodifluoromethane	75-71-8	Methane, dichlorodifluoro-	8010	10
			8240	
	5			
1,1-Dichloroethane	75-34-3	Ethane, 1,1-dichloro-	8010	
	1			
			8240	
	5			
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro-	8010	0.5
			8240	
	5			
1,1-Dichloroethylene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro-	8010	1
			8240	
	5			
trans-1,2-Dichloroethylene	156-60-5	Ethene, 1,2-dichloro-, (E)-	8010	1
			8240	5
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	8040	
	5			
			8270	
	10			
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-	8270	
	10			
1,2-Dichloropropane	78-87-5	Propane, 1,2-dichloro-	8010	0.5
			8240	5
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010	
	20			
			8240	

APPENDIX XII (Continued)
Ground Water Monitoring List[1]

Common Name[2]	CAS RN[3]	Chemical Abstracts Service Index Name[4]	Suggested Methods[5]	PQL (µg/L)[6]
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010 8240	5 5
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth[2,3-]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aa,2b,2aa,3b,6b,6aa,7b,7aa)-	8080 8270	0.05 10
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8060 8270	5 10
O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	8270	10
Dimethoate	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	8270	10
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270	10
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270	10
3,3'-Dimethylbenzidine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270	10
alpha, alpha-Dimethylphenethylamine	122-09-8	Benzeneethanamine, a,a-dimethyl-	8270	10
2,4-Dimethylphenol	105-67-9	Phenol, 2,4-dimethyl-	8040 8270	5 10
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060 8270	5 10
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-	8270	10
4,6-Dinitro-o-cresol	534-52-1	Phenol, 2-methyl-4,6-dinitro-	8040 8270	150 50
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-	8040 8270	150 50
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090 8270	0.2 10
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090 8270	0.1 10
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	8150 8270	1 10
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060 8270	30 10
1,4-Dioxane	123-91-1	1,4-Dioxane	8015	150
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10
Disulfoton	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)- S-[2-ethyl]ester	8140 8270	2 10
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3a,5ab,6a,9a,9ab)-	8080 8250	0.1 10
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3a,5aa,6b,9b,9aa)-	8080	0.05
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide	8080 8270	0.5 10
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aa,2b,2ab,3a,6a,6ab,7b,7aa)-	8080 8250	0.1 10
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1a,2b,2ab,4b,4ab,5b,6ab,6bb,7R*)-	8080 8270	0.2 10
Ethylbenzene	100-41-4	Benzene, ethyl-	8020 8240	2 5

APPENDIX XII (Continued)
Ground Water Monitoring List[1]

Common Name[2]	CAS RN[3]	Chemical Abstracts Service Index Name[4]	Suggested Methods[5]	PQL (µg/L)[6]
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015	10
			8240	5
			8270	10
Ethyl methanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270	10
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl]-O,O-dimethyl ester	8270	10
Fluoranthene	206-44-0	Fluoranthene	8100	200
			8270	10
Fluorene	86-73-7	9H-Fluorene	8100	200
			8270	10
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	8080	0.05
			8270	10
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-tachloro-1a,1b,5,5a,6,6a,-hexahydro-, (1aa,1bb, 2a,5ab,6b,6aa)	8080	1
			8270	10
Hexachlorobenzeze	118-74-1	Benzene, hexachloro-	8120	0.5
			8270	10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8120	5
			8270	10
Hexachlorocyclopentadiene	77-47-4	1,3 Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120	5
			8270	10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120	0.5
			8270	10
Hexachlorophene	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	8270	10
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10
2-Hexanone	591-76-6	2-Hexanone	8240	50
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno[1,2,3-cd]pyrene	8100	200
			8270	10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a hexahydro-(1a,4a,4ab,5b, 8b,8ab)-	8270	10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090	60
			8270	10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270	10
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta- [cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-	8270	10
Lead	(Total)	Lead	6010	40
			7420	1,000
			7421	10
Mercury	(Total)	Mercury	7470	2
Methacrylonitrile	128-98-7	2-Propenenitrile, 2-methyl-	8015	5
			8240	5
Methapyrilene	91-80-5	1,2,Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thien-ylmethyl)-	8270	10
Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2,trichloroethylidene)bis[4-methoxy-	8080	2
			8270	10
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-	8010	20
			8240	10
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-	8010	1
			8240	10
3-Methylcholanthrene	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	8270	10
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-	8010	15
			8240	5
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro-	8010	5
			8240	5
Methyl ethyl ketone, MEK	78-93-3	2-Butanone	8015	10
			8240	100
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-	8010	40
			8240	5
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015	2
			8240	5
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester	8270	10
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	8270	10
Methyl parathion; Parathion methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	8140	0.5
			8270	10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-	8015	5
			8240	50
Naphthalene	91-20-3	Naphthalene	8100	200
			8270	10
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10
Nickle	(Total)	Nickle	6010	50
			7520	400
o-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270	50
m-Nitroaniline	99-09-2	Benzenamine, 3-nitro-	8270	50
p-Nitroaniline	100-01-6	Benzenamine, 4-nitro-	8270	50
Nitrobenzene	98-95-3	Benzene, nitro-	8090	40
			8270	10
o-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040	5
			8270	10
p-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040	10
			8270	50
4-Nitroquinoline 1-oxide	56-57-5	Quinoline, 4-nitro, 1-oxide	8270	10

APPENDIX XII (Continued)
Ground Water Monitoring List[1]

Common Name[2]	CAS RN[3]	Chemical Abstracts Service Index Name[4]	Suggested Methods[5]	PQL (µg/L)[6]
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine, N-butyl-N-nitroso-	8270	10
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270	10
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl	8270	10
N-Nitrosodipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-	8270	10
N-Nitrosomethylethylamine	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosomorpholine	59-89-2	Morpholine, 4-nitroso-	8270	10
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-	8270	10
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270	10
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270	10
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl-O-(4-nitrophenyl) ester	8270	10
Polychlorinated biphenyls; PCBs	See Note 7	1,1'-Biphenyl, chloro derivatives	8080	50
			8250	100
Polychlorinated dibenzo-p-dioxins; PCDDs	See Note 8	Dibenzo[b,e][1,4]dioxin, chloro derivatives	8280	0.01
Polychlorinated dibenzofurans; PCDFs	See Note 9	Dibenzofuran, chloro derivatives	8280	0.01
Pentachlorobenzene	608-93-5	Benzene, pentachloro-	8270	10
Pentachloroethane	76-01-7	Ethane, pentachloro-	8240	5
			8270	10
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-	8270	10
Pentachlorophenol	87-86-5	Phenol, pentachloro-	8040	5
			8270	50
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270	10
Phenanthrene	85-01-8	Phenanthrene	8100	200
			8270	10
Phenol	108-95-2	Phenol	8040	1
			8270	10
p-Phenylenediamine	106-50-3	1,4-Benzenediamine	8270	10
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	8140	2
			8270	10
2-Picoline	109-06-8	Pyridine, 2-methyl-	8240	5
			8270	10
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8015	60
			8240	5
Pyrene	129-00-0	Pyrene	8100	200
			8270	10
Pyridine	110-86-1	Pyridine	8240	5
			8270	10
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-	8270	10
Selenium	(Total)	Selenium	6010	750
			7740	20
			7741	20
Silver	(Total)	Silver	6010	70
			7760	100
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150	2
Styrene	100-42-5	Benzene, ethenyl-	8020	1
			8240	5
Sulfide	18496-25-8	Sulfide	9030	10,000
2,4,5-T; 2,4,5-Trichlorophenoxy-acetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	8150	2
2,3,7,8-TCDD; 2,3,7,8-Tetrachloro-dibenzo-p-dioxin	1746-01-6	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	8280	0.005
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-	8270	10
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-	8010	5
			8240	5
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8010	0.5
			8240	5
Tetrachloroethylene; Perchloro-ethylene; Tetrachloroethene	127-18-4	Ethene, tetrachloro-	8010	0.5
			8240	5
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8270	10
Tetraethyl dithiopyrophosphate; Sulfotepp	3689-24-5	Thiodiphosphoric acid ($[(HO)_2P(S)]_2O$), tetraethyl ester	8270	10
Thallium	(Total)	Thallium	6010	400
			7840	1,000
			7841	10
Tin	(Total)	Tin	7870	8,000
Toluene	108-88-3	Benzene, methyl-	8020	2
			8240	5
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270	10
Toxaphene	8001-35-2	Toxaphene	8080	2
			8250	10
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8270	10
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-	8240	5
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-	8010	0.2
			8240	5
Trichloroethylene; Trichloroethene	79-01-6	Ethene, trichloro-	8010	1
			8240	5
Trichlorofluoromethane	75-69-4	Methane, trichlorofluoro-	8010	10
			8240	5
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	8270	10

APPENDIX XII (Continued)
Ground Water Monitoring List[1]

Common Name[2]	CAS RN[3]	Chemical Abstracts Service Index Name[4]	Suggested Methods[5]	PQL (µg/L)[6]
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	8040	5
			8270	10
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro-	8010	10
			8240	5
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, O,O,O-triethyl ester	8270	10
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-	8270	10
Vanadium	(Total)	Vanadium	6010	80
			7910	2,000
			7911	40
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8240	5
Vinyl chloride	75-01-4	Ethene, chloro-	8010	2
			8240	10
Xylene (total)	1330-20-7	Benzene, dimethyl-	8020	5
			8240	5
Zinc	(Total)	Zinc	6010	20
			7950	50

[1]The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.
[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.
[3]Chemical Abstracts Service registry number. Where "Total" is entered, all species in the ground water that contain this element are included.
[4]CAS index names are those used in the 9th Cumulative Index.
[5]Suggested Methods refer to analytical procedure numbers used in environmental protection agency report SW-846 "Test Methods for Evaluating Solid Waste," third edition, November 1986. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.
[6]Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in ground waters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.
[7]Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 1104-28-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1), and Aroclor-1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.
[8]This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins (see also 2,3,7,8-TCDD), pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins. The PQL shown is an average value for PCDD congeners.
[9]This category contians congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans. The PQL shown is an average value for PCDF congeners.

APPENDIX XIII
NATIONAL CAPACITY LDR VARIANCES FOR UIC WASTES[a]

Waste Code	Waste Category	Effective Date
F001-F005	All spent F001-F005 solvent containing less than 1 percent total F001-F005 solvent constituents	Aug. 8, 1990.
California list	Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/l, or containing certain metals or compounds of these metals greater than or equal to the prohibition levels	Aug. 8, 1990.
California list	Liquid hazardous waste having a pH less than or equal to 2	Aug. 8, 1990.
California list	Hazardous wastes containing HOCs in total concentrations less than 10,000 mg/l but greater than or equal to 1,000 mg/l	Aug. 8, 1990.
D002[b]	All	May 8, 1992.
D003 (cyanides)	All	May 8, 1992.
D003 (sulfides)	All	May 8, 1992.
D003 (explosives, reactives).	All	May 8, 1992.
D007	All	May 8, 1992.
D009	Nonwastewater	May 8, 1992.
F007	All	June 8, 1991.
F039	Wastewater	May 8, 1992.
K009	Wastewater	June 8, 1991.
K011	Nonwastewater	June 8, 1991.
K011	Wastewater	May 8, 1992.
K013	Nonwastewater	June 8, 1991.
K013	Wastewater	May 8, 1992.
K014	All	May 8, 1992.
K016 (dilute)	All	June 8, 1991.
K049	All	Aug. 8, 1990.
K050	All	Aug. 8, 1990.
K051	All	Aug. 8, 1990.
K052	All	Aug. 8, 1990.
K062	All	Aug. 8, 1990.
K071	All	Aug. 8, 1990.
K104	All	Aug. 8, 1990.

FOOTNOTE: [a]Wastes that are deep well disposed onsite receive a six-month variance, with restrictions effective in November 1990.

FOOTNOTE: [b]Deepwell injected D002 liquids with a pH less than 2 must meet the California List treatment standards on August 8, 1990.

Note: This table is provided for the convenience of the reader.

APPENDIX XIV [RESERVED] (now reads as Appendix XXI)

ADD NEW TABLE: Appendix XV - Recordkeeping, Notification and Certification Requirements

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, notification, and certification requirements
I. Generator	A. Waste does not meet applicable treatment standards or exceeds applicable prohibition levels (see subdivision a of subsection 1 of section 33-24-05-256).	Each shipment	Treatment or storage facility.	Notice must include: •environmental protection agency/state hazardous waste number. •Constituents of concern. •Treatability group. •Manifest number. •Waste analysis data (where available).
	B. Waste can be disposed of without further treatment (meets applicable treatment standards or does not exceed prohibition levels upon generation) (see subdivision b of subsection 1 of section 33-24-05-256).	Each shipment	Land disposal facility	Notice and certification statement that waste meets applicable treatment standards or applicable prohibition levels. Notice must include: •environmental protection agency/state hazardous waste number. •Constituents of concern. •Treatability group. •Manifest number. •Waste analysis data (where available). Certification statement required under paragraph 2 of subdivision b of subsection 1 of section 33-24-05-256 that waste complies with treatment standards and prohibitions.
	C. Waste is subject to exemption from a prohibition on the type of land disposal utilized for the waste, such as a case-by-case extension under section 33-24-05-254, an exemption under section 33-24-05-255, or a nationwide capacity variance (see subdivision c of subsection 1 of section 33-24-05-256).	Each shipment	Receiving facility	Notice must include: •Statement that waste is not prohibited from land disposal. •environmental protection agency/state hazardous waste number. •Constituents of concern. •Treatability group. •Manifest number. •Waste analysis data (where available). •Date the waste is subject to the prohibitions.
	D. Waste is being accumulated in tanks or containers regulated under section 33-24-03-12 and is being treated in such tanks or containers to meet applicable treatment standards (see subdivision d of subsection 1 of section 33-24-05-256).	Minimum of 30 days prior to treatment activity.	The department via certified mail. Delivery must be verified.	Generator must develop, keep on-site, and follow a written waste analysis plan describing procedures used to comply with the treatment standards. If waste is shipped off-site, generator also must comply with notification requirement of subdivision b of subsection 1 of section 33-24-05-256.

ADD NEW TABLE: Appendix XV - Recordkeeping, Notification and Certification Requirements

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, notification, and certification requirements
	E. Generator is managing a lab pack containing certain wastes and wishes to use an alternative treatment standard (see subdivision h of subsection 1 of section 33-24-05-256.	Each shipment	Treatment facility	Notice in accordance with subdivisions a, e and f of subsection 1 of section 33-24-05-256, where applicable. Certification in accordance with subdivision h of subsection 1 of section 33-24-05-256.
	F. Small quantity generators with tolling agreements (pursuant to subsection 5 of section 33-24-03-03) (see subdivision i of subsection 1 of section 33-24-05-256).	Initial shipment	Treatment facility	Must comply with applicable notification and certification requirements in subsection 1 of section 33-24-05-256. Generator also must retain copy of the notification and certification together with tolling agreement on-site for at least 3 years after termination or expiration of agreement.
	G. Generator has determined waste is restricted based solely on his knowledge of the waste (see subdivision e of subsection 1 of section 33-24-05-256.	N/A	Generator's file	All supporting data must be retained on-site in generator's files.
	H. Generator has determined waste is restricted based on testing waste or an extract (see subdivision e of subsection 1 of section 33-24-05-256).	N/A	Generator's file	All waste analysis data must be retained on-site in generator's files.
	I. Generator has determined that waste is excluded from the definition of hazardous or solid waste or exempt from regulation under article 33-24 (see subsection f of section 33-24-05-256).	One-time	Generator's file	Notice of generation and subsequent exclusion from the definition of hazardous or solid waste, or exemption from regulation under article 33-24, and information regarding the disposition of the waste.

ADD NEW TABLE: Appendix XV - Recordkeeping, Notification and Certification Requirements

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, notification, and certification requirements
	J. Generator (or treater) claims that hazardous debris is excluded from the definition of hazardous waste under subdivision a of subsection 6 of section 33-24-02-03 (see subsection 4 of section 33-24-05-256).	One-time	The department. Notification must be updated as necessary under subdivision b of subsection 4 of section 33-24-05-256.	Notice must include: •Name and address of Subtitle D facility receiving treated debris. •environmental protection agency/state hazardous waste number and description of debris as initially generated. •Technology used to treat the debris (Table 1 of section 33-24-05-285). Certification and recordkeeping in accordance with subdivision c of subsection 4 of section 33-24-05-256.
	K. Generator (or treater) claims that characteristic wastes are no longer hazardous (see subsection 4 of section 33-24-05-258).	One-time	Generator's (or treater's) files and the department. Notification must be updated as necessary under subsection 4 of section 33-24-05-258.	Notice must include: •Name and address of Subtitle D facility receiving the waste. •environmental protection agency/state hazardous waste number and description of waste as initially generated. •Treatability group. •Underlying hazardous constituents. Certification in accordance with subdivision b of subsection 4 of section 33-24-05-258.
	L. Other recordkeeping requirements (see subdivision g of subsection 1 of section 33-24-05-256).	N/A	Generator's file	Generator must retain a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to section 33-24-05-256 on-site for at least 5 years from the date that the waste was last sent to on-site or off-site treatment, storage, or disposal. This period is automatically extended during enforcement actions or as requested by the department.
II. Treatment Facility	A. Waste shipped from treatment facility to land disposal facility (see subdivisions d and e of subsection 2 of section 33-24-05-256).	Each shipment	Land disposal facility	Notice must include: •environmental protection agency/state hazardous waste number. •Constituents of concern. •Treatability group. •Manifest number. •Waste analysis data (where available). Application certification, in accordance with paragraphs 1, 2 and 3 of subdivision e of subsection 2 of section 33-24-05-256, stating that the waste or treatment residue has been treated in compliance with applicable treatment standards and prohibitions.
	B. Waste treatment residue from a treatment or storage facility will be further managed at a different treatment or storage facility (see subdivision f of subsection 2 of section 33-24-05-256).	Each shipment	Receiving facility	Treatment, storage, or disposal facility must comply with all notice and certification requirements applicable to generators.

ADD NEW TABLE: Appendix XV - Recordkeeping, Notification and Certification Requirements

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, notification, and certification requirements
	C. Where wastes are recyclable materials used in a manner constituting disposal subject to subsection 2 of section 33-24-05-201 (see subdivision g of subsection 2 of section 33-24-05-256).	Each shipment	The department..	No notification to receiving facility required pursuant to subdivision d of subsection 2 of section 33-24-05-256. Certification as described in subdivision e of subsection 2 of section 33-24-05-256 and notice with information listed in subdivision d of subsection 2 of section 33-24-05-256, except manifest number. Recycling facility must keep records of the name and location of each entity receiving hazardous waste-derived products.
III. Land Disposal Facility.	A. Wastes accepted by land disposal facility (see subsection 3 of section 33-24-05-256).	N/A	N/A	Maintain copies of notice and certifications specified in subsections 1 and 2 of section 33-24-05-256.

Certification Statements

A. I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in sections 33-24-05-280 through 33-24-05-289 and all applicable prohibitions set forth in section 33-24-05-272 or Resource Conservation and Recovery Act section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment. (Paragraph 2 of subdivision b of subsection 1 of section 33-24-05-256.)

B. I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack does not contain any wastes identified appendix VIII of chapter 33-24-05. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment. (Subdivision h of subsection 1 of section 33-24-05-256.)

C. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in sections 33-24-05-280 through 33-24-05-289, and all applicable prohibitions set forth in section 33-24-05-282 or Resource Conservation and Recovery Act section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment. (Paragraph 1 of subdivision e of subsection 2 of section 33-24-05-256.)

D. I certify under penalty of law that the waste has been treated in accordance with the requirements of section 33-24-05-282. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment. (Paragraph 2 of subdivision e of subsection 2 of section 33-24-05-256.)

E. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to

support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with sections 33-24-05144 through 33-24-05-159, or subsection 5 of section 33-24-06-16, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents, despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment. (Paragraph 3 of subdivision e of subsection 2 of section 33-24-05-256.)

F. I certify under penalty of law that the waste has been treated in accordance with the requirements of section 33-24-05-280 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment. (Paragraph 4 of subdivision e of subsection 2 of section 33-24-05-256.)

G. I certify under penalty of law that the debris have been treated in accordance with the requirements of section 33-24-05-285. I am aware that there are significant penalties for making a false certification, including the possibility of fine and imprisonment. (Paragraph 3 of subdivision c of subsection 4 of section 33-24-05-256.)

APPENDIX XVI
TIER I AND TIER II FEED RATE AND EMISSIONS SCREENING LIMITS FOR METALS

Table I-A

Tier I and Tier II Feed Rate and Emissions Screening Limits for Noncarcinogenic Metals for Facilities in Noncomplex Terrain

Values for urban areas

TESH (m)	Antimony (g/hr)	Barium (g/hr)	Lead (g/hr)	Mercury (g/hr)	Silver (g/hr)	Thallium (g/hr)
4	6.0E+01	1.0E+04	1.8E+01	6.0E+01	6.0E+02	6.0E+01
6	6.8E+01	1.1E+04	2.0E+01	6.8E+01	6.8E+02	6.8E+01
8	7.6E+01	1.3E+04	2.3E+01	7.6E+01	7.6E+02	7.6E+01
10	8.6E+01	1.4E+04	2.6E+01	8.6E+01	8.6E+02	8.6E+01
12	9.6E+01	1.7E+04	3.0E+01	9.6E+01	9.6E+02	9.6E+01
14	1.1E+02	1.8E+04	3.4E+01	1.1E+02	1.1E+03	1.1E+02
16	1.3E+02	2.1E+04	3.6E+01	1.3E+02	1.3E+03	1.3E+02
18	1.4E+02	2.4E+04	4.3E+01	1.4E+02	1.4E+03	1.4E+02
20	1.6E+02	2.7E+04	4.6E+01	1.6E+02	1.6E+03	1.6E+02
22	1.8E+02	3.0E+04	5.4E+01	1.8E+02	1.8E+03	1.8E+02
24	2.0E+02	3.4E+04	6.0E+01	2.0E+02	2.0E+03	2.0E+02
26	2.3E+02	3.9E+04	6.8E+01	2.3E+02	2.3E+03	2.3E+02
28	2.6E+02	4.3E+04	7.8E+01	2.6E+02	2.6E+03	2.6E+02
30	3.0E+02	5.0E+04	9.0E+01	3.0E+02	3.0E+03	3.0E+02
35	4.0E+02	6.6E+04	1.1E+02	4.0E+02	4.0E+03	4.0E+02
40	4.6E+02	7.8E+04	1.4E+02	4.6E+02	4.6E+03	4.6E+02
45	6.0E+02	1.0E+05	1.8E+02	6.0E+02	6.0E+03	6.0E+02
50	7.8E+02	1.3E+05	2.3E+02	7.8E+02	7.8E+03	7.8E+02
55	9.6E+02	1.7E+05	3.0E+02	9.6E+02	9.6E+03	9.6E+02
60	1.2E+03	2.0E+05	3.6E+02	1.2E+03	1.2E+04	1.2E+03
65	1.5E+03	2.5E+05	4.3E+02	1.5E+03	1.5E+04	1.5E+03
70	1.7E+03	2.8E+05	5.0E+02	1.7E+03	1.7E+04	1.7E+03
75	1.9E+03	3.2E+05	5.8E+02	1.9E+03	1.9E+04	1.9E+03
80	2.2E+03	3.6E+05	6.4E+02	2.2E+03	2.2E+04	2.2E+03
85	2.5E+03	4.0E+05	7.6E+02	2.5E+03	2.5E+04	2.5E+03
90	2.8E+03	4.6E+05	8.2E+02	2.8E+03	2.8E+04	2.8E+03
95	3.2E+03	5.4E+05	9.6E+02	3.2E+03	3.2E+04	3.2E+03
100	3.6E+03	6.0E+05	1.1E+03	3.6E+03	3.6E+04	3.6E+03
105	4.0E+03	6.8E+05	1.2E+03	4.0E+03	4.0E+04	4.0E+03
110	4.6E+03	7.8E+05	1.4E+03	4.6E+03	4.6E+04	4.6E+03
115	5.4E+03	8.6E+05	1.6E+03	5.4E+03	5.4E+04	5.4E+03
120	6.0E+03	1.0E+06	1.8E+03	6.0E+03	6.0E+04	6.0E+03

Table I-B. Tier I and Tier II Feed Rate and Emissions Screening Limits for Noncarcinogenic Metals for Facilities in Noncomplex Terrain

Values for rural areas

TESH (m)	Antimony (g/hr)	Barium (g/hr)	Lead (g/hr)	Mercury (g/hr)	Silver (g/hr)	Thallium (g/hr)
4	3.1E+01	5.2E+03	9.4E+00	3.1E+01	3.1E+02	3.1E+01
6	3.6E+01	6.0E+03	1.1E+01	3.6E+01	3.6E+02	3.6E+01
8	4.0E+01	6.8E+03	1.2E+01	4.0E+01	4.0E+02	4.0E+01
10	4.6E+01	7.8E+03	1.4E+01	4.6E+01	4.6E+02	4.6E+01
12	5.8E+01	9.6E+03	1.7E+01	5.8E+01	5.8E+02	5.8E+01
14	6.8E+01	1.1E+04	2.1E+01	6.8E+01	6.8E+02	6.8E+01
16	8.6E+01	1.4E+04	2.6E+01	8.6E+01	8.6E+02	8.6E+01
18	1.1E+02	1.8E+04	3.2E+01	1.1E+02	1.1E+03	1.1E+02
20	1.3E+02	2.2E+04	4.0E+01	1.3E+02	1.3E+03	1.3E+02
22	1.7E+02	2.8E+04	5.0E+01	1.7E+02	1.7E+03	1.7E+02
24	2.2E+02	3.6E+04	6.4E+01	2.2E+02	2.2E+03	2.2E+02
26	2.8E+02	4.6E+04	8.2E+01	2.8E+02	2.8E+03	2.8E+02
28	3.5E+02	5.8E+04	1.0E+02	3.5E+02	3.5E+03	3.5E+02
30	4.3E+02	7.6E+04	1.3E+02	4.3E+02	4.3E+03	4.3E+02
35	7.2E+02	1.2E+05	2.1E+02	7.2E+02	7.2E+03	7.2E+02
40	1.1E+03	1.8E+05	3.2E+02	1.1E+03	1.1E+04	1.1E+03
45	1.5E+03	2.5E+05	4.6E+02	1.5E+03	1.5E+04	1.5E+03
50	2.0E+03	3.3E+05	6.0E+02	2.0E+03	2.0E+04	2.0E+03
55	2.6E+03	4.4E+05	7.8E+02	2.6E+03	2.6E+04	2.6E+03
60	3.4E+03	5.8E+05	1.0E+03	3.4E+03	3.4E+04	3.4E+03
65	4.6E+03	7.6E+05	1.4E+03	4.6E+03	4.6E+04	4.6E+03
70	5.4E+03	9.0E+05	1.6E+03	5.4E+03	5.4E+04	5.4E+03
75	6.4E+03	1.1E+06	1.9E+03	6.4E+03	6.4E+04	6.4E+03
80	7.6E+03	1.3E+06	2.3E+03	7.6E+03	7.6E+04	7.6E+03
85	9.4E+03	1.5E+06	2.8E+03	9.4E+03	9.4E+04	9.4E+03
90	1.1E+04	1.8E+06	3.3E+03	1.1E+04	1.1E+05	1.1E+04
95	1.3E+04	2.2E+06	3.9E+03	1.3E+04	1.3E+05	1.3E+04
100	1.5E+04	2.6E+06	4.6E+03	1.5E+04	1.5E+05	1.5E+04
105	1.8E+04	3.0E+06	5.4E+03	1.8E+04	1.8E+05	1.8E+04
110	2.2E+04	3.6E+06	6.6E+03	2.2E+04	2.2E+05	2.2E+04
115	2.6E+04	4.4E+06	7.8E+03	2.6E+04	2.6E+05	2.6E+04
120	3.1E+04	5.0E+06	9.2E+03	3.1E+04	3.1E+05	3.1E+04

Table I-C. Tier I and Tier II Feed Rate and Emissions Screening Limits for Noncarcinogenic Metals for Facilities in Complex Terrain

Values for urban and rural areas

TESH (m)	Antimony (g/hr)	Barium (g/hr)	Lead (g/hr)	Mercury (g/hr)	Silver (g/hr)	Thallium (g/hr)
4	1.4E+01	2.4E+03	4.3E+00	1.4E+01	1.4E+02	1.4E+01
6	2.1E+01	3.5E+03	6.2E+00	2.1E+01	2.1E+02	2.1E+01
8	3.0E+01	5.0E+03	9.2E+00	3.0E+01	3.0E+02	3.0E+01
10	4.3E+01	7.6E+03	1.3E+01	4.3E+01	4.3E+02	4.3E+01
12	5.4E+01	9.0E+03	1.7E+01	5.4E+01	5.4E+02	5.4E+01
14	6.8E+01	1.1E+04	2.0E+01	6.8E+01	6.8E+02	6.8E+01
16	7.8E+01	1.3E+04	2.4E+01	7.8E+01	7.8E+02	7.8E+01
18	8.6E+01	1.4E+04	2.6E+01	8.6E+01	8.6E+02	8.6E+01
20	9.6E+01	1.6E+04	2.9E+01	9.6E+01	9.6E+02	9.6E+01
22	1.0E+02	1.8E+04	3.2E+01	1.0E+02	1.0E+03	1.0E+02
24	1.2E+02	1.9E+04	3.5E+01	1.2E+02	1.2E+03	1.2E+02
26	1.3E+02	2.2E+04	3.6E+01	1.3E+02	1.3E+03	1.3E+02
28	1.4E+02	2.4E+04	4.3E+01	1.4E+02	1.4E+03	1.4E+02
30	1.6E+02	2.7E+04	4.6E+01	1.6E+02	1.6E+03	1.6E+02
35	2.0E+02	3.3E+04	5.8E+01	2.0E+02	2.0E+03	2.0E+02
40	2.4E+02	4.0E+04	7.2E+01	2.4E+02	2.4E+03	2.4E+02
45	3.0E+02	5.0E+04	9.0E+01	3.0E+02	3.0E+03	3.0E+02
50	3.6E+02	6.0E+04	1.1E+02	3.6E+02	3.6E+03	3.6E+02
55	4.6E+02	7.6E+04	1.4E+02	4.6E+02	4.6E+03	4.6E+02
60	5.8E+02	9.4E+04	1.7E+02	5.8E+02	5.8E+03	5.8E+02
65	6.8E+02	1.1E+05	2.1E+02	6.8E+02	6.8E+03	6.8E+02
70	7.8E+02	1.3E+05	2.4E+02	7.8E+02	7.8E+03	7.8E+02
75	8.6E+02	1.4E+05	2.6E+02	8.6E+02	8.6E+03	8.6E+02
80	9.6E+02	1.6E+05	2.9E+02	9.6E+02	9.6E+03	9.6E+02
85	1.1E+03	1.8E+05	3.3E+02	1.1E+03	1.1E+04	1.1E+03
90	1.2E+03	2.0E+05	3.6E+02	1.2E+03	1.2E+04	1.2E+03
95	1.4E+03	2.3E+05	4.0E+02	1.4E+03	1.4E+04	1.4E+03
100	1.5E+03	2.6E+05	4.6E+02	1.5E+03	1.5E+04	1.5E+03
105	1.7E+03	2.8E+05	5.0E+02	1.7E+03	1.7E+04	1.7E+03
110	1.9E+03	3.2E+05	5.8E+02	1.9E+03	1.9E+04	1.9E+03
115	2.1E+03	3.6E+05	6.4E+02	2.1E+03	2.1E+04	2.1E+03
120	2.4E+03	4.0E+05	7.2E+02	2.4E+03	2.4E+04	2.4E+03

Table I-D. Tier I and Tier II Feed Rate and Emissions Screening Limits for Carcinogenic Metals for Facilities in Noncomplex Terrain

	Values for use in urban areas				Values for use in rural areas			
TESH (m)	Arsenic (g/hr)	Cadmium (g/hr)	Chromium (g/hr)	Beryllium (g/hr)	Arsenic (g/hr)	Cadmium (g/hr)	Chromium (g/hr)	Beryllium (g/hr)
4	4.6E-01	1.1E+00	1.7E-01	8.2E-01	2.4E-01	5.8E-01	8.6E-02	4.3E-01
6	5.4E-01	1.3E+00	1.9E-01	9.4E-01	2.8E-01	6.6E-01	1.0E-01	5.0E-01
8	6.0E-01	1.4E+00	2.2E-01	1.1E+00	3.2E-01	7.6E-01	1.1E-01	5.6E-01
10	6.8E-01	1.6E+00	2.4E-01	1.2E+00	3.6E-01	8.6E-01	1.3E-01	6.4E-01
12	7.6E-01	1.8E+00	2.7E-01	1.4E+00	4.3E-01	1.1E+00	1.6E-01	7.8E-01
14	8.6E-01	2.1E+00	3.1E-01	1.5E+00	5.4E-01	1.3E+00	2.0E-01	9.6E-01
16	9.6E-01	2.3E+00	3.5E-01	1.7E+00	6.8E-01	1.6E+00	2.4E-01	1.2E+00
18	1.1E+00	2.6E+00	4.0E-01	2.0E+00	8.2E-01	2.0E+00	3.0E-01	1.5E+00
20	1.2E+00	3.0E+00	4.4E-01	2.2E+00	1.0E+00	2.5E+00	3.7E-01	1.9E+00
22	1.4E+00	3.4E+00	5.0E-01	2.5E+00	1.3E+00	3.2E+00	4.8E-01	2.4E+00
24	1.6E+00	3.9E+00	5.8E-01	2.8E+00	1.7E+00	4.0E+00	6.0E-01	3.0E+00
26	1.8E+00	4.3E+00	6.4E-01	3.2E+00	2.1E+00	5.0E+00	7.6E-01	3.9E+00
28	2.0E+00	4.8E+00	7.2E-01	3.6E+00	2.7E+00	6.4E+00	9.8E-01	5.0E+00
30	2.3E+00	5.4E+00	8.2E-01	4.0E+00	3.5E+00	8.2E+00	1.2E+00	6.2E+00
35	3.0E+00	6.8E+00	1.0E+00	5.4E+00	5.4E+00	1.3E+01	1.9E+00	9.6E+00
40	3.6E+00	9.0E+00	1.3E+00	6.8E+00	8.2E+00	2.0E+01	3.0E+00	1.5E+01
45	4.6E+00	1.1E+01	1.7E+00	8.6E+00	1.1E+01	2.8E+01	4.2E+00	2.1E+01
50	6.0E+00	1.4E+01	2.2E+00	1.1E+01	1.5E+01	3.7E+01	5.4E+00	2.8E+01
55	7.6E+00	1.8E+01	2.7E+00	1.4E+01	2.0E+01	5.0E+01	7.2E+00	3.6E+01
60	9.4E+00	2.2E+01	3.4E+00	1.7E+01	2.7E+01	6.4E+01	9.6E+00	4.8E+01
65	1.1E+01	2.8E+01	4.2E+00	2.1E+01	3.6E+01	8.6E+01	1.3E+01	6.4E+01
70	1.3E+01	3.1E+01	4.6E+00	2.4E+01	4.3E+01	1.0E+02	1.5E+01	7.6E+01
75	1.5E+01	3.6E+01	5.4E+00	2.7E+01	5.0E+01	1.2E+02	1.8E+01	9.0E+01
80	1.7E+01	4.0E+01	6.0E+00	3.0E+01	6.0E+01	1.4E+02	2.2E+01	1.1E+02
85	1.9E+01	4.6E+01	6.8E+00	3.4E+01	7.2E+01	1.7E+02	2.6E+01	1.3E+02
90	2.2E+01	5.0E+01	7.8E+00	3.9E+01	8.6E+01	2.0E+02	3.0E+01	1.5E+02
95	2.5E+01	5.8E+01	9.0E+00	4.4E+01	1.0E+02	2.4E+02	3.6E+01	1.8E+02
100	2.8E+01	6.8E+01	1.0E+01	5.0E+01	1.2E+02	2.9E+02	4.3E+01	2.2E+02
105	3.2E+01	7.6E+01	1.1E+01	5.6E+01	1.4E+02	3.4E+02	5.0E+01	2.6E+02
110	3.6E+01	8.6E+01	1.3E+01	6.4E+01	1.7E+02	4.0E+02	6.0E+01	3.0E+02
115	4.0E+01	9.6E+01	1.5E+01	7.2E+01	2.0E+02	4.8E+02	7.2E+01	3.6E+02
120	4.6E+01	1.1E+02	1.7E+01	8.2E+01	2.4E+02	5.8E+02	8.6E+01	4.3E+02

Table I-E. Tier I and Tier II Feed Rate and Emissions Screening Limits for Carcinogenic Metals for Facilities in Complex Terrain

Values for use in urban and rural areas

TESH (m)	Arsenic (g/hr)	Cadmium (g/hr)	Chromium (g/hr)	Beryllium (g/hr)
4	1.1E-01	2.6E-01	4.0E-02	2.0E-01
6	1.6E-01	3.9E-01	5.8E-02	2.9E-01
8	2.4E-01	5.8E-01	8.6E-02	4.3E-01
10	3.5E-01	8.2E-01	1.3E-01	6.2E-01
12	4.3E-01	1.0E+00	1.5E-01	7.6E-01
14	5.0E-01	1.3E+00	1.9E-01	9.4E-01
16	6.0E-01	1.4E+00	2.2E-01	1.1E+00
18	6.8E-01	1.6E+00	2.4E-01	1.2E+00
20	7.6E-01	1.8E+00	2.7E-01	1.3E+00
22	8.2E-01	1.9E+00	3.0E-01	1.5E+00
24	9.0E-01	2.1E+00	3.3E-01	1.6E+00
26	1.0E+00	2.4E+00	3.6E-01	1.8E+00
28	1.1E+00	2.7E+00	4.0E-01	2.0E+00
30	1.2E+00	3.0E+00	4.4E-01	2.2E+00
35	1.5E+00	3.7E+00	5.4E-01	2.7E+00
40	1.9E+00	4.6E+00	6.8E-01	3.4E+00
45	2.4E+00	5.4E+00	8.4E-01	4.2E+00
50	2.9E+00	6.8E+00	1.0E+00	5.0E+00
55	3.5E+00	8.4E+00	1.3E+00	6.4E+00
60	4.3E+00	1.0E+01	1.5E+00	7.8E+00
65	5.4E+00	1.3E+01	1.9E+00	9.6E+00
70	6.0E+00	1.4E+01	2.2E+00	1.1E+01
75	6.8E+00	1.6E+01	2.4E+00	1.2E+01
80	7.6E+00	1.8E+01	2.7E+00	1.3E+01
85	8.2E+00	2.0E+01	3.0E+00	1.5E+01
90	9.4E+00	2.3E+01	3.4E+00	1.7E+01
95	1.0E+01	2.5E+01	4.0E+00	1.9E+01
100	1.2E+01	2.8E+01	4.3E+00	2.1E+01
105	1.3E+01	3.2E+01	4.8E+00	2.4E+01
110	1.5E+01	3.5E+01	5.4E+00	2.7E+01
115	1.7E+01	4.0E+01	6.0E+00	3.0E+01
120	1.9E+01	4.4E+01	6.4E+00	3.3E+01

APPENDIX XVII
TIER I FEED RATE SCREENING LIMITS FOR TOTAL CHLORINE AND CHLORIDE

Tier I Feed Rate Screening Limits for Chlorine for Facilities in Noncomplex and Complex Terrain

	Noncomplex		Complex
TESH (m)	Urban (lb/hr)	Rural (lb/hr)	(lb/hr)
4	1.8E-02	9.2E-03	4.1E-03
6	2.0E-02	1.0E-02	6.1E-03
8	2.2E-02	1.2E-02	9.0E-03
10	2.5E-02	1.4E-02	1.3E-02
12	2.9E-02	1.7E-02	1.6E-02
14	3.3E-02	2.0E-02	2.0E-02
16	3.7E-02	2.5E-02	2.3E-02
18	4.1E-02	3.2E-02	2.5E-02
20	4.7E-02	3.9E-02	2.9E-02
22	5.3E-02	5.0E-02	3.1E-02
24	6.0E-02	6.3E-02	3.5E-02
26	6.8E-02	8.1E-02	3.8E-02
28	7.6E-02	1.0E-01	4.2E-02
30	8.7E-02	1.3E-01	4.7E-02
35	1.2E-01	2.1E-01	5.8E-02
40	1.4E-01	3.2E-01	7.2E-02
45	1.8E-01	4.4E-01	8.8E-02
50	2.3E-01	5.8E-01	1.1E-01
55	2.9E-01	7.7E-01	1.4E-01
60	3.6E-01	1.0E+00	1.7E-01
65	4.3E-01	1.4E+00	2.0E-01
70	5.0E-01	1.6E+00	2.3E-01
75	5.6E-01	1.9E+00	2.5E-01
80	6.3E-01	2.2E+00	2.9E-01
85	7.3E-01	2.8E+00	3.2E-01
90	8.3E-1	3.2E+00	3.6E-01
95	9.3E-01	3.8E+00	4.0E-01
100	1.1E+00	4.6E+00	4.4E-01
105	1.2E+00	5.4E+00	5.0E-01
110	1.4E+00	6.5E+00	5.6E-01
115	1.6E+00	7.7E+00	6.2E-01
120	1.8E+00	9.1E+00	7.1E-01

APPENDIX XVIII
Tier II Emission Rate Screening Limits for Free Chlorine and Hydrogen Chloride

Tier II Emissions Screening Limits for Cl_2 and HCl in Noncomplex Terrain

	Values for use in urban areas		Values for use in rural areas	
TESH (m)	Cl_2 (g/sec)	HCl (g/sec)	Cl_2 (g/sec)	HCl (g/sec)
4	2.3E-03	4.0E-01	1.2E-03	2.0E-01
6	2.5E-03	4.4E-01	1.3E-03	2.3E-01
8	2.8E-03	4.9E-01	1.5E-03	2.6E-01
10	3.2E-03	5.6E-01	1.7E-03	3.0E-01
12	3.6E-03	6.3E-01	2.1E-03	3.7E-01
14	4.1E-03	7.2E-01	2.5E-03	4.4E-01
16	4.7E-03	8.2E-01	3.2E-03	5.6E-01
18	5.2E-03	9.1E-01	4.0E-03	7.0E-01
20	5.9E-03	1.0E+00	4.9E-03	8.6E-01
22	6.7E-03	1.2E+00	6.3E-03	1.1E+00
24	7.6E-03	1.3E+00	8.0E-03	1.4E+00
26	8.5E-03	1.5E+00	1.0E-02	1.8E+00
28	9.6E-03	1.7E+00	1.3E-02	2.3E+00
30	1.1E-02	1.9E+00	1.6E-02	2.8E+00
35	1.5E-02	2.6E+00	2.7E-02	4.7E+00
40	1.7E-02	3.0E+00	4.0E-02	7.0E+00
45	2.3E-02	4.0E+00	5.6E-02	9.8E+00
50	2.9E-02	5.1E+00	7.3E-02	1.3E+01
55	3.6E-02	6.3E+00	9.7E.02	1.7E+01
60	4.5E-02	7.9E+00	1.3E-01	2.2E+01
65	5.5E-02	9.6E+00	1.7E-01	3.0E+01
70	6.3E-02	1.1E+01	2.0E-01	3.5E+01
75	7.1E-02	1.2E+01	2.4E-01	4.2E+01
80	8.0E-02	1.4E+01	2.8E-01	4.9E+01
85	9.2E-02	1.6E+01	3.5E-01	6.1E+01
90	1.0E-01	1.8E+01	4.0E-01	7.0E+01
95	1.2E-01	2.1E+01	4.8E-01	8.4E+01
100	1.3E-01	2.3E+01	5.7E-01	1.0E+02
105	1.5E-01	2.6E+01	6.8E-01	1.2E+02
110	1.7E-01	3.0E+01	8.1E-01	1.4E+02
115	2.0E-01	3.5E+01	9.7E-01	1.7E+02
120	2.3E-01	4.0E+01	1.1E+00	2.0E+02

Tier II Emissions Screening Limits for Cl_2 and HCl in Complex Terrain

Values for use in urban and rural areas

TESH (m)	Cl_2 (g/sec)	HCl (g/sec)
4	5.2E-04	9.1E-02
6	7.7E-04	1.4E-01
8	1.1E-03	2.0E-01
10	1.6E-03	2.8E-01
12	2.0E-03	3.5E-01
14	2.5E-03	4.4E-01
16	2.9E-03	5.1E-01
18	3.2E-03	5.6E-01
20	3.6E-03	6.3E-01
22	3.9E-03	6.8E-01
24	4.4E-03	7.7E-01
26	4.8E-03	8.4E-01
28	5.3E-03	9.3E-01
30	5.9E-03	1.0E+00
35	7.3E-03	1.3E+00
40	9.1E-03	1.6E+00
45	1.1E-02	1.9E+00
50	1.3E-02	2.3E+00
55	1.7E-02	3.0E+00
60	2.1E-02	3.7E+00
65	2.5E-02	4.4E+00
70	2.9E-02	5.1E+00
75	3.2E-02	5.6E+00
80	3.6E-02	6.3E+00
85	4.0E-02	7.0E+00
90	4.5E-02	7.9E+00
95	5.1E-02	8.9E+00
100	5.6E-02	9.8E+00
105	6.3E-02	1.1E+01
110	7.1E-02	1.2E+01
115	7.9E-02	1.4E+01
120	8.9E-02	1.6E+01

Appendix XIX Reference Air Concentrations*		
Constituent	CAS No.	Reference Air Concentration (ug/m3)
Acetaldehyde	75-07-0	10
Acetonitrile	75-05-8	10
Acetophenone	98-86-2	100
Acrolein	107-02-8	20
Aldicarb	116-06-3	1
Aluminum Phosphide	20859-73-8	0.3
Allyl Alcohol	107-18-6	5
Antimony	7440-36-0	0.3
Barium	7440-39-3	50
Barium Cyanide	542-62-1	50
Bromomethane	74-83-9	0.8
Calcium Cyanide	592-01-8	30
Carbon Disulfide	75-15-0	200
Chloral	75-87-6	2
Chlorine (free)		0.4
2-Chloro-1,3-butadiene	126-99-8	3
Chromium III	16065-83-1	1000
Copper Cyanide	544-92-3	5
Cresols	1319-77-3	50
Cumene	98-82-8	1
Cyanide (free)	57-12-15	20
Cyanogen	460-19-5	30
Cyanogen Bromide	506-68-3	80
Di-n-butyl Phthalate	84-74-2	100
o-Dichlorobenzene	95-50-1	10
p-Dichlorobenzene	106-46-7	10
Dichlorodifluoromethane	75-71-8	200
2,4-Dichlorophenol	120-83-2	3
Diethyl Phthalate	84-66-2	800
Dimethoate	60-51-5	0.8
2,4-Dinitrophenol	51-28-5	2

Appendix XIX Reference Air Concentrations*		
Constituent	CAS No.	Reference Air Concentration (ug/m3)
Dinoseb	88-85-7	0.9
Diphenylamine	122-39-4	20
Endosulfan	115-29-1	0.05
Endrin	72-20-8	0.3
Fluorine	7782-41-4	50
Formic Acid	64-18-6	2000
Glycidyaldehyde	765-34-4	0.3
Hexachlorocyclopentadiene	77-47-4	5
Hexachlorophene	70-30-4	0.3
Hydrocyanic Acid	74-90-8	20
Hydrogen Chloride	7647-01-1	7
Hydrogen Sulfide	7783-06-4	3
Isobutyl Alcohol	78-83-1	300
Lead	7439-92-1	0.09
Maleic Anhydride	108-31-6	100
Mercury	7439-97-6	0.3
Methacrylonitrile	126-98-7	0.1
Methomyl	16752-77-5	20
Methoxychlor	72-43-5	50
Methyl Chlorocarbonate	79-22-1	1000
Methyl Ethyl Ketone	78-93-3	80
Methyl Parathion	298-00-0	0.3
Nickel Cyanide	557-19-7	20
Nitric Oxide	10102-43-9	100
Nitrobenzene	98-95-3	0.8
Pentachlorobenzene	608-93-5	0.8
Pentachlorophenol	87-86-5	30
Phenol	108-95-2	30
M-Phenylenediamine	108-45-2	5
Phenylmercuric Acetate	62-38-4	0.075
Phosphine	7803-51-2	0.3

Appendix XIX Reference Air Concentrations*		
Constituent	CAS No.	Reference Air Concentration (ug/m3)
Phthalic Anhydride	85-44-9	2000
Potassium Cyanide	151-50-8	50
Potassium Silver Cyanide	506-61-6	200
Pyridine	110-86-1	1
Selenious Acid	7783-60-8	3
Selenourea	630-10-4	5
Silver	7440-22-4	3
Silver Cyanide	506-64-9	100
Sodium Cyanide	143-33-9	30
Strychnine	57-24-9	0.3
1,2,4,5-Tetrachlorobenzene	95-94-3	0.3
2,3,4,6-Tetrachlorophenol	58-90-2	30
Tetraethyl Lead	78-00-2	0.0001
Tetrahydrofuran	109-99-9	10
Thallic Oxide	1314-32-5	0.3
Thallium	7440-28-0	0.5
Thallium (I) Acetate	563-68-8	0.5
Thallium (I) Carbonate	6533-73-9	0.3
Thallium (I) Chloride	7791-12-0	0.3
Thallium (I) Nitrate	10102-45-1	0.5
Thallium Selenite	12039-52-0	0.5
Thallium (I) Sulfate	7446-18-6	0.075
Thiram	137-26-8	5
Toluene	108-88-3	300
1,2,4-Trichlorobenzene	120-82-1	20
Trichloromonofluoromethane	75-69-4	300
2.4.5-Trichlorophenol	95-95-4	100
Vanadium Pentoxide	1314-62-1	20
Warfarin	81-81-2	0.3
Xylenes	1330-20-7	80
Zinc Cyanide	557-21-1	50

Appendix XIX Reference Air Concentrations*		
Constituent	CAS No.	Reference Air Concentration (ug/m3)
Zinc Phosphide	1314-84-7	0.3

*The reference air concentration for other appendix V of chapter 33-24-02 constituents not listed herein or in appendix XX of chapter 33-24-05 is 0.1 ug/m^3.

Appendix XX Risk Specific Doses (10^{-5})			
Constituent	CAS No.	Unit Risk (m3/ug)	RSD (ug/m3)
Acrylamide	79-06-1	1.3E-03	7.7E-03
Acrylonitrile	107-13-1	6.8E-05	1.5E-01
Aldrin	309-00-2	4.9E-03	2.0E-03
Aniline	62-53-3	7.4E-06	1.4E+00
Arsenic	7440-38-2	4.3E-03	2.3E-03
Benz(a)anthracene	56-55-3	8.9E-04	1.1E-02
Benzene	71-43-2	8.3E-06	1.2E+00
Benzidine	92-87-5	6.7E-02	1.5E-04
Benzo(a)pyrene	50-32-8	3.3E-03	3.0E-03
Beryllium	7440-41-7	2.4E-03	4.2E-03
Bis(2-chloroethyl)ether	111-44-4	3.3E-04	3.0E-02
Bis(chloromethyl)ether	542-88-1	6.2E-02	1.6E-04
Bis(2-ethylhexyl)-phthalate	117-81-7	2.4E-07	4.2E+01
1,3-Butadiene	106-99-0	2.8E-04	3.6E-02
Cadmium	7440-43-9	1.8E-03	5.6E-03
Carbon Tetrachloride	56-23-5	1.5E-05	6.7E-01
Chlordane	57-74-9	3.7E-04	2.7E-02
Chloroform	67-66-3	2.3E-05	4.3E-01
Chloromethane	74-87-3	3.6E-06	2.8E+00
Chromium VI	7440-47-3	1.2E-02	8.3E-04
DDT	50-29-3	9.7E-05	1.0E-01
Dibenz(a,h)anthracene	53-70-3	1.4E-02	7.1E-04
1,2-Dibromo-3-chloropropane	96-12-8	6.3E-03	1.6E-03
1,2-Dibromoethane	106-93-4	2.2E-04	4.5E-02
1,1-Dichloroethane	75-34-3	2.6E-05	3.8E-01
1,2-Dichloroethane	107-06-2	2.6E-05	3.8E-01
1,1-Dichloroethylene	75-35-4	5.0E-05	2.0E-01
1,3-Dichloropropene	542-75-6	3.5E-01	2.9E-05
Dieldrin	60-57-1	4.6E-03	2.2E-03
Diethylstilbestrol	56-53-1	1.4E-01	7.1E-05
Dimethylnitrosamine	62-75-9	1.4E-02	7.1E-04
2,4-Dinitrotoluene	121-14-2	8.8E-05	1.1E-01
1,2-Diphenylhydrazine	122-66-7	2.2E-04	4.5E-02

Appendix XX Risk Specific Doses (10^{-5})			
Constituent	CAS No.	Unit Risk (m3/ug)	RSD (ug/m3)
1,4-Dioxane	123-91-1	1.4E-06	7.1E+00
Epichlorohydrin	106-89-8	1.2E-06	8.3E+00
Ethylene Oxide	75-21-8	1.0E-04	1.0E-01
Ethylene Dibromide	106-93-4	2.2E-04	4.5E-02
Formaldehyde	50-00-0	1.3E-05	7.7E-01
Heptachlor	76-44-8	1.3E-03	7.7E-03
Heptachlor Epoxide	1024-57-3	2.6E-03	3.8E-03
Hexachlorobenzene	118-74-1	4.9E-04	2.0E-02
Hexachlorobutadiene	87-68-3	2.0E-05	5.0E-01
Alpha-hexachloro-cyclohexane	319-84-6	1.8E-03	5.6E-03
Beta-hexachloro-cyclohexane	319-85-7	5.3E-04	1.9E-02
Gamma-hexachloro-cyclohexane	58-89-9	3.8E-04	2.6E-02
Hexachlorocyclohexane, Technical		5.1E-04	2.0E-02
Hexachlorodibenxo-p-dioxin(1,2 Mixture)		1.3E+0	7.7E-06
Hexachloroethane	67-72-1	4.0E-06	2.5E+00
Hydrazine	302-01-2	2.9E-03	3.4E-03
Hydrazine Sulfate	302-01-2	2.9E-03	3.4E-03
3-Methylcholanthrene	56-49-5	2.7E-03	3.7E-03
Methyl Hydrazine	60-34-4	3.1E-04	3.2E-02
Methylene Chloride	75-09-2	4.1E-06	2.4E+00
4,4'-Methylene-bis-2-chloroaniline	101-14-4	4.7E-05	2.1E-01
Nickel	7440-02-0	2.4E-04	4.2E-02
Nickel Refinery Dust	7440-02-0	2.4E-04	4.2E-02
Nickel Subsulfide	12035-72-2	4.8E-04	2.1E-02
2-Nitropropane	79-46-9	2.7E-02	3.7E-04
N-Nitroso-n-butylamine	924-16-3	1.6E-03	6.3E-03
N-Nitroso-n-methylurea	684-93-5	8.6E-02	1.2E-04
N-Nitrosodiethylamine	55-18-5	4.3E-02	2.3E-04
N-Nitrosopyrrolidine	930-55-2	6.1E-04	1.6E-02
Pentachloronitrobenzene	82-68-8	7.3E-05	1.4E-01
PCBs	1336-36-3	1.2E-03	8.3E-03
Pronamide	23950-58-5	4.6E-06	2.2E+00

Appendix XX Risk Specific Doses (10^{-5})			
Constituent	CAS No.	Unit Risk (m3/ug)	RSD (ug/m3)
Reserpine	50-55-5	3.0E-03	3.3E-03
2,3,7,8-Tetrachloro-dibenzo-p-dioxin	1746-01-6	4.5E+01	2.2E-07
1,1,2,2-Tetrachloroethane	79-34-5	5.8E-05	1.7E-01
Tetrachloroethylene	127-18-4	4.8E-07	2.1E+01
Thiourea	62-56-6	5.5E-04	1.8E-02
1,1,2-Trichloroethane	79-00-5	1.6E-05	6.3E-01
Trichloroethylene	79-01-6	1.3E-06	7.7E+00
2,4,6-Trichlorophenol	88-06-2	5.7E-06	1.8E+00
Toxaphene	8001-35-2	3.2E-04	3.1E-02
Vinyl Chloride	75-01-4	7.1E-06	1.4E+00

APPENDIX ~~XIV~~ XXI

STACK PLUME RISE: [Estimated Plume Rise (in Meters) Based on Stack Exit Flow Rate and Gas Temperature]

	Exhaust Temperature (K°)										
Flow rate (m3/s)	<325	325-349	350-399	400-449	450-499	500-599	600-699	700-799	800-999	1000-1499	>1499
<0.5	0	0	0	0	0	0	0	0	0	0	0
0.5-0.9	0	0	0	0	0	0	0	0	1	1	1
1.0-1.9	0	0	0	0	1	1	2	3	3	3	4
2.0-2.9	0	0	1	3	4	4	6	6	7	8	9
3.0-3.9	0	1	2	5	6	7	9	10	11	12	13
4.0-4.9	1	2	4	6	8	10	12	13	14	15	17
5.0-7.4	2	3	5	8	10	12	14	16	17	19	21
7.5-9.9	3	5	8	12	15	17	20	22	22	23	24
10.0-12.4	4	6	10	15	19	21	23	24	25	26	27
12.5-14.9	4	7	12	18	22	23	25	26	27	28	29
15.0-19.9	5	8	13	20	23	24	26	27	28	29	31
20.0-24.9	6	10	17	23	25	27	29	30	31	32	34
25.0-29.9	7	12	20	25	27	29	31	32	33	35	36
30.0-34.9	8	14	22	26	29	31	33	35	36	37	39
35.0-39.9	9	16	23	28	30	32	35	36	37	39	41
40.0-49.9	10	17	24	29	32	34	36	38	39	41	42
50.0-59.9	12	21	26	31	34	36	39	41	42	44	46
60.0-69.9	14	22	27	33	36	39	42	43	45	47	49
70.0-79.9	16	23	29	35	38	41	44	46	47	49	51
80.0-89.9	17	25	30	36	40	42	46	48	49	51	54
90.0-99.9	19	26	31	38	42	44	48	50	51	53	56
100.0-119.9	21	26	32	39	43	46	49	52	53	55	58
120.0-139.9	22	28	35	42	46	49	52	55	56	59	61
140.0-159.9	23	30	36	44	48	51	55	58	59	62	65
160.0-179.9	25	31	38	46	50	54	58	60	62	65	67
180.0-199.9	26	32	40	48	52	56	60	63	65	67	70
>199.9	26	33	41	49	54	58	62	65	67	69	73

APPENDIX XXII
HEALTH-BASED LIMITS FOR EXCLUSION OF WASTE-DERIVED RESIDUES*

Metals-TCLP Extract Concentration Limits

Constituent	CAS No.	Concentration limits (mg/kg)
Antimony	7440-36-0	1xE+00
Arsenic	7440-38-2	5xE+00
Barium	7440-39-3	1xE+02
Beryllium	7440-41-7	7xE-03
Cadmium	7440-43-9	1xE+00
Chromium	7440-47-3	5xE+00
Lead	7439-92-1	5xE+00
Mercury	7439-97-6	2xE-01
Nickel	7440-02-0	7xE+01
Selenium	7782-49-2	1xE+00
Silver	7440-22-4	5xE+00

Nonmetals-Residue Concentration Limits

Constituent	CAS No.	Concentration limits for residues (mg/kg)
Acetonitrile	75-05-8	2xE-01
Acetophenone	98-86-2	4xE+00
Acrolein	107-02-8	5xE-01
Acrylamide	79-06-1	2xE-04
Acrylonitrile	107-13-1	7xE-04
Aldrin	309-00-2	2xE-05
Allyl alcohol	107-18-6	2xE-01
Aluminum phosphide	20859-73-8	1xE-02
Aniline	62-53-3	6xE-02
Barium cyanide	542-62-1	1xE+00
Benz(a)anthracene	56-55-3	1xE-04
Benzene	71-43-2	5xE-03
Benzidine	92-87-5	1xE-06
Bis(2-chloroethyl) ether	111-44-4	3xE-04
Bis(chloromethyl) ether	542-88-1	2xE-06
Bis(2-ethylhexyl) phthalate	117-81-7	3xE+01
Bromoform	75-25-2	7xE-01
Calcium cyanide	592-01-8	1xE-06
Carbon disulfide	75-15-0	4xE+00
Carbon tetrachloride	56-23-5	5xE-03
Chlordane	57-74-9	3xE-04
Chlorobenzene	108-90-7	1xE+00
Chloroform	67-66-3	6xE-02
Copper cyanide	544-92-3	2xE-01
Cresols (Cresylic acid)	1319-77-3	2xE+00
Cyanogen	460-19-5	1xE+00
DDT	50-29-3	1xE-03
Dibenz(a, h)-anthracene	53-70-3	7xE-06
1,2-Dibromo-3-chloropropane	96-12-8	2xE-05
p-Dichlorobenzene	106-46-7	7.5xE-02
Dichlorodifluoromethane	75-71-8	7xE+00
1,1-Dichloroethylene	75-35-4	5xE-03
2,4-Dichlorophenol	120-83-2	1xE-01
1,3-Dichloropropene	542-75-6	1xE-03
Dieldrin	60-57-1	2xE-05
Diethyl phthalate	84-66-2	3xE+01
Diethylstilbesterol	56-53-1	7xE-07
Dimethoate	60-51-5	3xE-02
2,4-Dinitrotoluene	121-14-2	5xE-04
Diphenylamine	122-39-4	9xE-01
1,2-Diphenylhydrazine	122-66-7	5xE-04
Endosulfan	115-29-7	2xE-03
Endrin	72-20-8	2xE-04
Epichlorohydrin	106-89-8	4xE-02
Ethylene dibromide	106-93-4	4xE-07
Ethylene oxide	75-21-8	3xE-04
Fluorine	7782-41-4	4xE+00

Formic acid	64-18-6	7xE+01
Heptachlor	76-44-8	8xE-05
Heptachlor epoxide	1024-57-3	4xE-05
Hexachlorobenzene	118-74-1	2xE-04
Hexachlorobutadiene	87-68-3	5xE-03
Hexachlorocyclopentadiene	77-47-4	2xE-01
Hexachlorodibenzo-p-dioxins	19408-74-3	6xE-08
Hexachloroethane	67-72-1	3xE-02
Hydrazine	302-01-1	1xE-04
Hydrogen cyanide	74-90-8	7xE-05
Hydrogen sulfide	7783-06-4	1xE-06
Isobutyl alcohol	78-83-1	1xE+01
Methomyl	16752-77-5	1xE+00
Methoxychlor	72-43-5	1xE-01
3-Methylcholanthrene	56-49-5	4xE-05
4,4'-Methylenebis (2-chloroaniline)	101-14-4	2xE-03
Methylene chloride	75-09-2	5xE-02
Methyl ethyl ketone (MEK)	78-93-3	2xE+00
Methyl hydrazine	60-34-4	3xE-04
Methyl parathion	298-00-0	2xE-02
Naphthalene	91-20-3	1xE+01
Nickel cyanide	557-19-7	7xE-01
Nitric oxide	10102-43-9	4xE+00
Nitrobenzene	98-95-3	2xE-02
N-Nitrosodi-n-butylamine	924-16-3	6xE-05
N-Nitrosodiethylamine	55-18-5	2xE-06
N-Nitroso-N-methylurea	684-93-5	1xE-07
N-Nitrosopyrrolidine	930-55-2	2xE-04
Pentachlorobenzene	608-93-5	3xE-02
Pentachloronitrobenzene (PCNB)	82-68-8	1xE-01
Pentachlorophenol	87-86-5	1xE+00
Phenol	108-95-2	1xE+00
Phenylmercury acetate	62-38-4	3xE-03
Phosphine	7803-51-2	1xE-02
Polychlorinated biphenyls, N.O.S	1336-36-3	5xE-05
Potassium cyanide	151-50-8	2xE+00
Potassium silver cyanide	506-61-6	7xE+00
Pronamide	23950-58-5	3xE+00
Pyridine	110-86-1	4xE-02
Reserpine	50-55-5	3xE-05
Selenourea	630-10-4	2xE-01
Silver cyanide	506-64-9	4xE+00
Sodium cyanide	143-33-9	1xE+00
Strychnine	57-24-9	1xE-02
1,2,4,5-Tetrachlorobenzene	95-94-3	1xE-02
1,1,2,2-tetrachloroethane	79-34-5	2xE-03
Tetrachloroethylene	127-18-4	7xE-01
2,3,4,6-Tetrachlorophenol	58-90-2	1xE-02
Tetraethyl lead	78-00-2	4xE-06
Thallium	7440-28-0	7xE+00
Thallic oxide	1314-32-5	2xE-03
Thallium(I) acetate	563-68-8	3xE-03
Thallium(I) carbonate	6533-73-9	3xE-03
Thallium(I) chloride	7791-12-0	3xE-03
Thallium(I) nitrate	10102-45-1	3xE-03
Thallium selenite	12039-52-0	3xE-03
Thallium(I) sulfate	7446-18-6	3xE-03
Thiourea	62-56-6	2xE-04
Toluene	108-88-3	1xE+01
Toxaphene	8001-35-2	5xE-03
1,1,2-Trichloroethane	79-00-5	6xE-03
Trichloroethylene	79-01-6	5xE-03
Trichloromonofluoromethane	75-69-4	1xE+01
2,4,5-Trichlorophenol	95-95-4	4xE+00
2,4,6-Trichlorophenol	88-06-2	4xE+00
Vanadium pentoxide	1314-62-1	7xE-01
Vinyl chloride	75-01-4	2xE-03

*Note: The health-based concentration limits for appendix V of chapter 33-24-02 constituents for which a health-based concentration is not provided below is 2xE-06 mg/kg.

APPENDIX XXIII
Potential Products of Incomplete Combustion for Determination of Exclusion of Waste-Derived Residues

Products of Incomplete Combustion Found in Stack Effluents

Volatiles:

Benzene
Toluene
Carbon tetrachloride
Chloroform
Methylene chloride
Trichloroethylene
Tetrachloroethylene
1,1,1-Trichloroethane
Chlorobenzene
cis-1,4-Dichloro-2-butene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
Methylene bromide
Methyl ethyl ketone

Semivolatiles:

Bis(2-ethylhexyl)phthalate
Naphthalene
Phenol
Diethyl phthalate
Butyl benzyl phthalate
2,4-Dimethylphenol
o-Dichlorobenzene
m-Dichlorobenzene
p-Dichlorobenzene
Hexachlorobenzene
2,4,6-Trichlorophenol
Fluoranthene
o-Nitrophenol
1,2,4-Trichlorobenzene
o-Chlorophenol
Pentachlorophenol
Pyrene
Dimethyl phthalate
Mononitrobenzene
2,6-Toluene diisocyanate

APPENDIX XXIV
Methods Manual for Compliance With the Boiler and Industrial Furnace Regulations

The Methods Manual for Compliance With the Boiler and Industrial Furnace Regulations* is incorporated by reference in its entirety from Appendix IX to 40 Code of Federal Regulations, Part 266.

* Note: Methods Manual for Compliance with Boiler and Industrial Furnace Regulations, U.S. EPA, December 1990, is available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4600, document number PB91-120-006.

APPENDIX XXV
Guideline on Air Quality Models (Revised)

The Guideline on Air Quality Models (Revised)* is incorporated by reference in its entirety from Appendix X to 40 Code of Federal Regulations, Part 266.

* Note: Guideline on Air Quality Models (Revised) (1986), U.S. EPA, including Supplement A (1987), is available from National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, document numbers PB86-245-248 (Guideline) and PB88-150-958 (Supplement A).

Appendix XXVI Lead-Bearing Materials That May be Processed in Exempt Lead Smelters	
A.	Exempt Lead-Bearing Materials When Generated or Originally Produced By Lead-Associated Industries[1]
1.	Acid dump/fill solids
2.	Sump mud
3.	Materials from laboratory analyses
4.	Acid filters
5.	Baghouse bags
6.	Clothing (for example, coveralls, aprons, shoes, hats, gloves)
7.	Sweepings
8.	Air filter bags and cartridges
9.	Respiratory cartridge filters
10.	Shop abrasives
11.	Stacking boards
12.	Waste shipping containers (for example, cartons, bags, drums, cardboard)
13.	Paper hand towels
14.	Wiping rags and sponges
15.	Contaminated pallets
16.	Water treatment sludges, filter cakes, residues, and solids
17.	Emission control dusts, sludges, filter cakes, residues, and solids from lead-associated industries (for example, K069 and D008 wastes)
18.	Spent grids, posts, and separators
19.	Spent batteries
20.	Lead oxide and lead oxide residues
21.	Lead plates and groups
22.	Spent battery cases, covers, and vents
23.	Pasting belts
24.	Water filter media
25.	Cheesecloth from pasting rollers
26.	Pasting additive bags
27.	Asphalt paving materials
[1]Lead-associated industries are lead smelters, lead- acid battery manufacturing, and lead chemical manufacturing (for example, manufacturing of lead oxide or other lead compounds).	
B.	Exempt Lead-Bearing Materials When Generated or Originally Produced By Any Industry
1.	Charging jumpers and clips
2.	Platen abrasive
3.	Fluff from lead wire and cable casings
4.	Lead-based pigments and compounding pigment dust

Appendix XXVII Nickel- or Chromium-Bearing Materials That May be Processed in Exempt Nickel-Chromium Recovery Furnaces	
A.	Exempt Nickel- or Chromium-Bearing Materials when Generated by Manufacturers or Users of Nickel, Chromium, or Iron
1.	Baghouse bags
2.	Raney nickel catalyst
3.	Floor sweepings
4.	Air filters
5.	Electroplating bath filters
6.	Wastewater filter media
7.	Wood pallets
8.	Disposable clothing (coveralls, aprons, hats, and gloves)
9.	Laboratory samples and spent chemicals
10.	Shipping containers and plastic liners from containers or vehicles used to transport nickel or chromium-containing wastes
11.	Respirator cartridge filters
12.	Paper hand towels
B.	Exempt Nickel or Chromium-Bearing Materials when Generated by Any Industry
1.	Electroplating wastewater treatment sludges (F006)
2.	Nickel and/or chromium-containing solutions
3.	Nickel, chromium, and iron catalysts
4.	Nickel-cadmium and nickel-iron batteries
Filter cake from wet scrubber system water treatment plants in the specialty steel industry[1] Filter cake from nickel-chromium alloy pickling operations[1] [1]If a hazardous waste under an authorized state program.	

Appendix XXVIII

Mercury Bearing Wastes That May be Processed in Exempt Mercury Recovery Units

These are exempt mercury-bearing materials with less than five hundred parts per million of appendix V of chapter 33-24-02 organic constituents when generated by manufacturers or users of mercury or mercury products.

1. Activated carbon.
2. Decomposer graphite.
3. Wood.
4. Paper.
5. Protective clothing.
6. Sweepings.
7. Respiratory cartridge filters.
8. Cleanup articles.
9. Plastic bags and other contaminated containers.
10. Laboratory and process control samples.
11. K106 and other wastewater treatment plant sludge and filter cake.
12. Mercury cell sump and tank sludge.
13. Mercury cell process solids.
14. Recoverable levels or mercury contained in soil.

ADD NEW APPENDIX XXIX:

APPENDIX XXIX
Metal-Bearing Wastes Prohibited From Dilution in a Combustion Unit According to Subsection 3 of Section 33-24-05-252

Waste code	Waste description
D004	Toxicity Characteristic for Arsenic.
D005	Toxicity Characteristic for Barium.
D006	Toxicity Characteristic for Cadmium.
D007	Toxicity Characteristic for Chromium.
D008	Toxicity Characteristic for Lead.
D009	Toxicity Characteristic for Mercury.
D010	Toxicity Characteristic for Selenium.
D011	Toxicity Characteristic for Silver.
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
F007	Spent cyanide plating bath solutions from electroplating operations.
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.
F010	Quenching bath residues from oil baths from metal treating operations where cyanides are used in the process.
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process.
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum car washing when such phosphating is an exclusive conversion coating process.
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.
K003	Wastewater treatment sludge from the production of molybdate orange pigments.
K004	Wastewater treatment sludge from the production of zinc yellow pigments.
K005	Wastewater treatment sludge from the production of chrome green pigments.
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).
K007	Wastewater treatment sludge from the production of iron blue pigments.
K008	Oven residue from the production of chrome oxide green pigments.
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.
K069	Emission control dust/sludge from secondary lead smelting.

APPENDIX XXIX
Metal-Bearing Wastes Prohibited From Dilution in a Combustion Unit According to Subsection 3 of Section 33-24-05-252

Waste code	Waste description
K071	Brine purification muds from the mercury cell processes in chlorine production, where separately prepurified brine is not used.
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.
K106	Sludges from the mercury cell processes for making chlorine.
P010	Arsenic acid H_3AsO_4
P011	Arsenic oxide As_2O_5
P012	Arsenic trioxide
P013	Barium cyanide
P015	Beryllium
P029	Copper cyanide Cu(CN)
P074	Nickel cyanide $Ni(CN)_2$
P087	Osmium tetroxide
P099	Potassium silver cyanide
P104	Silver cyanide
P113	Thallic oxide
P114	Thallium (I) selenite
P115	Thallium (I) sulfate
P119	Ammonium vanadate
P120	Vanadium oxide V_2O_5
P121	Zinc cyanide
U032	Calcium chromate
U145	Lead phosphate
U151	Mercury
U204	Selenious acid
U205	Selenium disulfide
U216	Thallium (I) chloride
U217	Thallium (I) nitrate

[1] A combustion unit is defined as any thermal technology subject to section 33-24-05-144 through 33-24-05-159 or sections 33-24-05-525 through 33-24-05-549.

CHAPTER 33-24-06
PERMITS

33-24-06-01. Application for a permit.

1. **Permit application.** Any person who is required to have a permit (including new applicants and permittees with expiring permits) shall complete, sign, and submit an application to the department as described in this section and section 33-24-06-16. Persons currently authorized with interim status shall apply for permits when required by the department. Persons covered by permits by rule (33-24-06-18) need not apply. Procedures for applications, issuance and administration of emergency permits are found exclusively in section 33-24-06-19. Procedures for application, issuance, and administration of research, development, and demonstration permits are found exclusively in section 33-24-06-20.

2. **Who must have a permit?** North Dakota Century Code chapter 23-20.3 requires that a permit be obtained for the treatment, storage, or disposal of any hazardous waste as identified or listed in chapter 33-24-02. Owners and operators of hazardous waste management units must have permits during the active life (including the closure period) of the unit, during any compliance period specified under section 33-24-05-53, including any extension of that period under subsection 3 of section 33-24-05-53. Owners or operators of surface impoundments, landfills, land treatment units, and waste pile units that received wastes after July 26, 1982, or that certified closure after January 26, 1983, must have postclosure permits, unless they demonstrate closure by removal as provided under subdivisions d and e. If a postclosure permit is required, the permit must address applicable chapter 33-24-05 ground water monitoring, unsaturated zone monitoring, corrective action, and postclosure care requirements of this article. The denial of a permit for the active life of a hazardous waste management facility or unit does not affect the requirement to obtain a postclosure permit under this section.

   a. **Specific inclusions.** Hazardous waste permits are required for:

(1) Injection wells that dispose of hazardous waste, and associated surface facilities that treat, store, or dispose of hazardous waste (see section 33-24-06-20). However, the owner or operator with an underground injection control permit will be deemed to have a hazardous waste permit for the injection well itself if the owner or operator complies with requirements of subsection 1 of section 33-24-06-18.

(2) Treatment, storage, or disposal of hazardous waste at facilities requiring a North Dakota pollutant discharge elimination system permit. However, the owner or operator of a publicly owned treatment works receiving hazardous waste will be deemed to have a hazardous waste permit for that waste if the owner or operator complies with the requirements of subsection 2 of section 33-24-06-18.

b. **Specific exclusions.** Hazardous waste permits are not required for:

(1) Generators who accumulate hazardous waste onsite for less than time periods as provided in section 33-24-03-12.

(2) Farmers who dispose of pesticide containers from their own use as provided in section 33-24-03-40.

(3) Persons who own or operate facilities solely for the treatment, storage, or disposal of hazardous waste excluded from regulation by section 33-24-02-04 or 33-24-02-05.

(4) Owners or operators of totally enclosed treatment facilities as defined in section 33-24-01-04.

(5) Owners or operators of elementary neutralization units or wastewater treatment units as defined in section 33-24-01-04.

(6) Transporters storing manifested shipments of hazardous waste in containers meeting the requirements of section 33-24-03-08 at a transfer facility for a period of ten days or less.

(7) Persons mixing absorbent material and waste in a container, provided this mixing occurs at the time waste is first placed in the container, and the person complies with sections 33-24-05-90 and 33-24-05-91, and subsection 2 of section 33-24-05-08.

(8) Universal waste handlers and universal waste transporters section 33-24-01-05 managing the wastes listed below. These handlers are subject to regulation under sections 33-24-05-700 through 33-24-05-765.

a. Batteries as described in section 33-24-05-702;

b. Pesticides as described in section 33-24-05-703; and

c. Mercury containing devices as described in section 33-24-05-704.

(9) Immediate response activities.

(a) A person is not required to obtain a hazardous waste permit for treatment or containment activities taken during immediate response to any of the following situations:

[1] A discharge of a hazardous waste.

[2] An imminent and substantial threat of a discharge of hazardous waste.

[3] A discharge of a material which, when discharged, becomes a hazardous waste.

(b) Any person who continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of this chapter for those activities.

c. **Permits for less than an entire facility.** The department may issue or deny a permit for one or more units at a facility without simultaneously issuing or denying a permit to all of the units at the facility. The interim status of any unit for which a permit has not been issued or denied is not affected by the issuance or denial of a permit to any other unit at the facility.

d. **Closure by removal.** Owners or operators of surface impoundments, land treatment units, and waste piles closing by removal or decontamination under chapter 33-24-05 standards must obtain a postclosure permit unless they can demonstrate to the department that the closure met the standards for closure by removal or decontamination in section 33-24-05-~~119~~ 122, subsection 5 of section 33-24-05-167, or section 33-24-05-135 respectively. The demonstration may be made in the following ways:

(1) If the owner or operator has submitted a part B application for a postclosure permit, the owner or operator may request a determination, based on information contained in the application, that chapter 33-24-05 closure by removal standards were met. If the department believes that chapter 33-24-05 standards were met, the department will notify the public of this proposed decision, allow for public comment, and reach a final determination according to the procedures in subdivision e.

(2) If the owner or operator has not submitted a part B application for a postclosure permit, the owner or operator may petition the department for a determination that a postclosure permit is not required because the closure met the applicable chapter 33-24-05 closure standards.

(a) The petition must include data demonstrating that closure by removal or decontamination standards were met, or it must demonstrate that the unit closed under requirements that met or exceeded the chapter 33-24-05 closure by removal standard.

(b) The department shall approve or deny the petition according to the procedures outlined in subdivision e.

e. **Procedures for closure equivalency determination.**

(1) If a facility owner or operator seeks an equivalency demonstration under subdivision d, the department will provide the public, through a newspaper notice, the opportunity to submit written comments on the information submitted by the owner or operator within thirty days from the notice. The department will also, in response to ~~your~~ a request, or at the department's own discretion, hold a public hearing whenever such a hearing might clarify one or more issues

concerning the equivalence of the closure period. The department will give public notice of the hearing at least thirty days before it occurs (public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.)

(2) The department will determine whether the chapter 33-24-05 closure met the standards for closure by removal or decontamination in section 33-24-05-~~119~~ 122, subsection 5 of section 33-24-05-167, or section 33-24-05-135 respectively within ninety days finds that the closure did not meet the applicable chapter 33-24-05 standards, the department will provide the owner or operator with a written statement of the reasons why the closure failed to meet chapter 33-24-05 standards. The owner or operator may submit additional information in support of an equivalency demonstration within thirty days after receiving such written statement. The department will review any additional information submitted and make a final determination within sixty days.

(3) If the department determines that the facility did not close in accordance with chapter 33-24-05 closure by removal standards, the facility is subject to postclosure permitting requirements.

3. **Who applies?** When a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit, however, the owner must also sign the permit application.

4. **Completeness.** The department will not issue a permit before receiving a complete application for a permit, except for permits by rule, or emergency permits. An application for a permit is complete when the department receives an application form and any supplemental information which is completed to its satisfaction. The completeness of any application for a permit shall be judged independently of the status of any other permit application or permit for the same facility or activity. An application for a permit is complete notwithstanding the failure of the owner or operator to submit the exposure information described in subsection 10. The department may deny a permit for the active life of a hazardous waste management facility or unit before receiving a complete application for a permit.

5. **Information requirements.** All applicants for hazardous waste permits shall provide the information required by section 33-24-06-17 to the department.

6. **Recordkeeping.** Applicants shall keep records of all data used to complete permit applications and any supplemental information submitted under this chapter for a period of at least three years from the date the application is signed.

7. **When to apply for a permit.**

a. **Existing hazardous waste management facilities.**

(1) Owners and operators of existing hazardous waste management facilities shall submit part A of their permit application (see subsection 1 of section 33-24-06-17) to the department no later than:

(a) Six months after the date of publication of rules which first require them to comply with the standards set forth in chapter 33-24-05; or

(b) Thirty days after the date they first become subject to the standards set forth in chapter 33-24-05, whichever occurs first.

(2) The department may extend the date by which owners and operators of specified classes of existing hazardous waste management facilities must submit part A of their permit application if it finds that:

(a) There has been substantial confusion as to whether the owners and operators of such facilities were required to file a permit application; and

(b) Such confusion is attributable to ambiguities in the department's rules in chapters 33-24-01 through 33-24-05.

(3) The department may, by compliance order, extend the date by which the owner or operator of an existing hazardous waste management facility must submit part A of the permit application.

(4) The owner and operator of an existing hazardous waste management facility may be required to submit part B of the permit application at any time. Any owner or operator must be allowed at least six months from the date of request to submit the application. Any owner or operator of an existing hazardous waste management facility may voluntarily submit an application at any time.

(5) Failure to furnish a requested permit application on time or to furnish in full the information required by the application is grounds for termination of the facility's operating status under the procedures of chapter 33-24-07.

b. **New hazardous waste management facilities.**

(1) No person may begin physical construction of a new hazardous waste management facility without having submitted a complete permit application (including both part A and part B) and having received a finally effective hazardous waste permit.

(2) An application for a permit for a new hazardous waste management facility (including both part A and part B) may be filed any time after promulgation of those standards in sections 33-24-05-89, et seq. applicable to such facility. The application must be submitted to the department at least one hundred eighty days before physical construction is expected to commence.

8. **Updating permit applications.**

a. If any owner or operator of a hazardous waste management facility has filed part A of a permit application and has not yet filed part B, the owner or operator shall amend part A of the application with the department:

(1) No later than the effective date of regulatory provisions listing or designating wastes as hazardous, if the facility is treating, storing, or disposing of any of those newly listed or designated wastes; or

(2) As necessary to comply with the provisions of section 33-24-06-16 for changes prior to the department making final administrative disposition of the application.

b. The owner or operator of a facility who fails to comply with the updating requirements of subdivision a of this subsection is not authorized to treat, store, dispose of those wastes not covered by a duly filed part A of the application.

9. **Reapplications.** Any hazardous waste management facility with an effective permit shall submit a new application at least one hundred eighty days before the expiration date of the effective permit unless permission for a later date has been granted by the department (the department shall not grant permission for applications to be submitted later than the expiration date of the existing permit).

10. **Exposure information.**

a. Any permit part B applications submitted by an owner or an operator of a facility that stores, treats, or disposes of hazardous waste in a surface impoundment or landfill must be accompanied by information, reasonably ascertainable by the owner or operator, on the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the unit. At a minimum, such information must address:

(1) Reasonably foreseeable potential releases from both normal operations and accidents at the unit, including releases associated with transportation to or from the unit; ~~and~~

(2) The potential pathways of human exposure to hazardous wastes or constituents resulting from the releases described under paragraph (1)~~.~~ ; and

(3) The potential magnitude and nature of the human exposure resulting from such releases.

b. Owners and operators of a landfill or surface impoundment who have already submitted a part B application must submit the exposure information required in subdivision a of subsection 10.

11. **General requirements.**

The department may require a permittee or an applicant to submit information in order to establish permit conditions under subdivision b of subsection 1 of section 33-24-06-05 and subsection 1 of section 33-24-06-06.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-02. Continuation of expiring permits.

1. The conditions of an expired permit (including expired permits issued by the environmental protection agency) continue in force until the effective date of a new permit if:

a. The permittee has submitted a timely application which is a complete application for a new permit; and

b. The department, through no fault of the permittee, does not issue a new permit with an effective date on or before the expiration date of the

previous permit (for example, when issuance is impractical due to time or resource constraints).

2. **Effect.** Permits continued under this section remain fully effective and enforceable.

3. **Enforcement.** When the permittee is not in compliance with the conditions of the expiring or expired permit the department may choose to do any or all of the following:

   a. Initiate enforcement action based upon the permit which has been continued.

   b. Issue a notice of intent to deny the new permit. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit.

   c. Issue a new permit with appropriate conditions.

   d. Take other actions authorized by this article.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-03. Signatories to permit applications and reports.

1. **Applications.** All hazardous waste permit applications must be signed as follows:

   a. For a corporation: by a responsible corporate officer. For the purpose of this section a responsible corporate officer means:

      (1) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or

      (2) The manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty persons or having gross annual sales or expenditures exceeding twenty-five million dollars (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

      NOTE: The department does not require specific assignments or delegations of authority to responsible corporate officers identified in paragraph 1 of subdivision a. The department will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the department to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under paragraph 2 of subdivision a of subsection 1 rather than to specific individuals.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes:

(1) The chief executive officer of the agency; or

(2) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. **Reports.** All reports required by permits, and other information requested by the department must be signed by a person described in subsection 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in subsection 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

c. The written authorization is submitted to the department.

3. **Changes to authorization.** If an authorization under subsection 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of subsection 2 must be submitted to the department prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. **Certification.** Any persons signing a document under subsection 1 or 2 of this section shall make the following certification:

> I certify under penalty of law that this document and all attachments were prepared under my ~~direct~~ direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons ~~to~~ who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

History: Effective January 1, 1984; amended effective October 1, 1986; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-04. Conditions applicable to permits. The following conditions apply to all hazardous waste permits. All conditions applicable to permits shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to this article must be given in the permit.

1. **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the North Dakota Century Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. However, the permittee need not comply with the conditions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit. (See section 33-24-06-19.)

2. **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit.

3. **Need to halt or reduce activity not a defense.** It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. **Duty to mitigate.** In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent any adverse impacts on human health or the environment.

5. **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

6. **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

7. **Property rights.** This permit does not convey any property rights of any sort or any exclusive privilege.

8. **Duty to provide information.** The permittee shall furnish to the department, within a reasonable time, any relevant information which the department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to this department, upon request, copies of records required to be kept by this permit.

9. **Inspection and entry.** The permittee shall allow the department, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

   a. Enter at reasonable times upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

   b. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized, any substances or parameters at any location.

10. **Monitoring and records.**

a. Samples and measurements taken for the purposes of monitoring must be representative of the monitored activity.

b. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, the certification required by subdivision i of subsection 2 of section 33-24-05-40, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report, certification, or application. This period may be extended by the request of the department at any time.

c. Records of monitoring information must include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individuals who performed the sampling or measurements;

(3) The dates analyses were performed;

(4) The individuals who performed the analyses;

(5) The analytical techniques or methods used; and

(6) The results of such analyses.

d. The permittee shall maintain records from all ground water monitoring wells and associated ground water surface elevations for the active life of the facility, and, for disposal facilities, for the postclosure care period as well.

11. **Signatory requirement.** All applications, reports, or information submitted to the department must be signed and certified. (See section 33-24-06-03.)

12. **Reporting requirements.**

a. **Planned changes.** The permittee shall give notice to the department as soon as possible of any planned physical alterations or additions to the permitted facility. For a new hazardous waste management facility, the permittee may not commence treatment, storage, or disposal of hazardous waste; and for a facility being modified, the permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility, until:

(1) The permittee has submitted to the department by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

(2) Either of the following:

(a) The department has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or

(b) Within fifteen days of the date of submission of the letter in paragraph 1, the permittee has not received notice from the department of its intent to inspect. If so, prior inspection by the department is waived and the permittee may commence treatment, storage, or disposal of hazardous waste.

b. **Anticipated noncompliance.** The permittee shall give advance notice to the department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. For a new facility, the permittee may not treat, store, or dispose of hazardous waste; and for a facility being modified, the permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility except as provided in chapter 33-24-06, until:

(1) The permittee has submitted to the department by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

(2) Complied with the following:

(a) The department has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or

(b) Within fifteen days of the date of submission of the letter in paragraph 1, the permittee has not received notice from the department of his or her intent to inspect, prior inspection is waived and the permittee may commence treatment, storage, or disposal of hazardous waste.

c. **Transfers.** This permit is not transferable to any person except after notice to the department. The department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary. (See section 33-24-06-11; in some cases, modification or revocation and reissuance is mandatory.)

d. **Monitoring reports.** Monitoring results must be reported at the intervals specified elsewhere in this permit.

e. **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than fourteen days following each schedule date.

f. **Twenty-four-hour reporting.**

(1) The permittee shall report any noncompliance which may endanger health or the environment.

(2) Any information shall be provided orally within twenty-four hours from the time the permittee becomes aware of the circumstances. The

following shall be included as information which must be reported orally:

(a) Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies; and

(b) Any information of a release or discharge of hazardous waste, or of a fire or explosion from a hazardous waste management facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause must include:

[1] Name, address, and telephone number of the owner or operator~~.~~;

[2] Name, address, and telephone number of the facility~~.~~;

[3] Date, time, and type of incident~~.~~;

[4] Name and quantity of materials involved~~.~~;

[5] The extent of injuries, if any~~.~~;

[6] An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable~~.~~; and

[7] Estimated quantity and disposition of recovered material that resulted from the incident.

(3) A written submission must also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(4) The department may waive the five-day written notice requirement in favor of a written report within fifteen days.

g. **Other noncompliance.** The permittee shall report all instances of noncompliance not reported under subdivisions a, d, e, and f, at the time monitoring reports are submitted. The reports must contain the information listed in subdivision f.

h. **Manifest discrepancy reports.** If a significant discrepancy in a manifest is discovered, the permittee shall attempt to reconcile the discrepancy. If not resolved within fifteen days, the permittee shall submit a letter report, including a copy of the manifest to the department.

i. **Unmanifested waste report.** An unmanifested waste report must be submitted to the department within fifteen days of receipt of unmanifested waste.

j. ~~**Annual**~~ **Biennial report:** ~~An annual~~ A biennial report must be submitted ~~by March first of each calendar year~~ covering facility activities during ~~the previous~~ odd numbered calendar ~~year.~~ years.

k. **Other information.** Where the permittee becomes aware that the permittee failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the department, the permittee shall promptly submit such facts or information.

13. **Information repository.** The department may require the permittee to establish and maintain an information repository at any time, based on the factors set forth in subsection 2 of section 33-24-07-27. The information repository will be governed by the provisions of subsections 3 through 6 of section 33-24-07-27.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-05. Establishing permit conditions.

1. **Additional conditions.**

   a. The department shall establish conditions in permits, as required on a case-by-case basis:

      (1) To provide for and assure compliance with all applicable requirements of North Dakota Century Code chapter 23-20.3 and its regulations. In satisfying this provision, the department may incorporate applicable requirements of chapter 33-24-05 directly into the permit or establish other permit conditions that are based on that chapter; and

      (2) To establish duration and scope of the permit (section 33-24-06-06), schedules of compliance (section 33-24-06-07), procedures for recording and reporting of monitoring results (section 33-24-06-08), and conditions consistent with other state and federal laws (section 33-24-06-09).

   b. The department shall also establish any other reasonable conditions which it deems necessary.

   c. Any statutory or regulatory requirement which takes effect prior to final administrative disposition of a permit is an applicable requirement within the meaning of this section. Any requirement which takes effect prior to the modification or revocation and reissuance of a permit, to the extent allowed in section 33-24-06-12, is also an applicable requirement. Both provide a means for reopening state permit proceedings at the discretion of the department where the new requirements are of sufficient magnitude to make additional proceedings desirable.

2. **Incorporation.** All permit conditions must be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements must be given in the permit.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-06. Duration and scope of permits.

1. Hazardous waste permits are effective for a fixed term of five years. Every five years permits must be modified as necessary to assure that the facility continues to comply with the currently applicable requirements of Resource Conservation and Recovery Act sections 3004 and 3005, and take into account improvements in technology as well as applicable rules.

2. Except as provided in section 33-24-06-02, the term of a permit may not be extended by modification beyond the maximum duration specified in this section.

3. Permits for less than an entire facility. The department may issue or deny a permit for one or more units at a facility without simultaneously issuing or denying a permit to all of the units at the facility. The status of any unit for which a permit has not been issued or denied is not affected by the issuance or denial of a permit to any other unit at the facility.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-05

33-24-06-07. Schedules of compliance.

1. The permit may, when appropriate, specify a schedule of compliance leading to compliance with North Dakota Century Code chapter 23-20.3 and its regulations.

   a. Time for compliance. Any schedules of compliance under this section shall require compliance as soon as possible.

   b. Interim dates. Except as provided in paragraph 2 of subdivision a of subsection 2, if a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule must set forth interim requirements and the dates for their achievement.

      (1) The time between interim dates may not exceed one year.

      (2) If the time necessary for completion of any interim requirements (such as the construction of a control facility) is more than one year and is not readily divisible into stages for completion, the permit must specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

   c. Reporting. The permit must be written to require that no later than fourteen days following each interim date and the final date of compliance, the permittee shall notify the department in writing of its compliance or noncompliance with the interim or final requirements.

2. Alternative schedules of compliance. A permit applicant or permittee may cease conducting regulated activities [by receiving a terminal volume of hazardous waste and closing (and conducting postclosure care, where applicable) pursuant to applicable requirements] rather than continue to operate and meet permit requirements as follows:

   a. If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:

      (1) The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or

(2) The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit.

b. If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit must contain a schedule leading to termination which will ensure timely compliance with applicable requirements.

c. If the permittee is undecided whether to cease conducting regulated activities, the department may issue or modify a permit to contain two schedules as follows:

(1) Both schedules must contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities.

(2) One schedule shall lead to timely compliance with applicable requirements.

(3) The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements.

(4) Each permit containing two schedules must require that after the permittee has made a final decision under paragraph 1 the permittee shall (a): follow the schedule leading to compliance if the decision is to continue conducting regulated activities; or (b): follow the schedule leading to termination if the decision is to cease conducting regulated activities.

d. The applicant's or permittee's decision to cease conducting regulated activities must be evidenced by a firm public commitment satisfactory to the department such as a resolution of the board of directors of a corporation.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-08. Requirements for recording and reporting of monitoring results. All permits shall specify:

1. Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);

2. Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring; and

3. Applicable reporting requirements based upon the impact of the regulated activity and as specified in chapter 33-24-05. Reporting must be no less frequent than specified in that chapter.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03

Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-09. Considerations under other state and federal laws. Permits must be issued in a manner and must contain conditions consistent with requirements of other applicable laws of this state and the federal government.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-10. Effect of a permit.

1. Compliance with a hazardous waste permit during its term constitutes compliance, for purposes of enforcement, with North Dakota Century Code chapter 23-20.3 except for those requirements not included in the permit which:

   a. Become effective by statute;

   b. Are promulgated under sections 33-24-05-250 through 33-24-05-290 restricting the placement of hazardous wastes in or on the land; ~~or~~

   c. Are promulgated under chapter 33-24-05 regarding leak detection systems for new and replacement surface impoundment, waste pile, and landfill units, and lateral expansions of surface impoundment, waste pile, and landfill units. The leak detection system requirements include double liners, construction quality assurance programs, monitoring, action leakage rates, and response action plans, and will be implemented through the procedures of section 33-24-06-14 class 1 permit modifications~~.~~ ; or

   d. Are promulgated under sections 33-24-05-400 through 33-24-05-474 limiting air emissions.

2. The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.

3. The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-11. Transfer of permits.

1. A permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under subsection 2 or subdivision b of subsection 2 of section 33-24-06-12) to identify the new permittee and incorporate such other requirements as may be necessary.

2. Changes in the ownership or operational control of a facility may be made as a class 1 modification with prior written approval of the department in accordance with section 33-24-06-14. The new owner or operator must submit

a revised permit application no later than ninety days prior to a scheduled change. A written agreement containing a specific date for transfer of permit responsibility between the current and new permittees must also be submitted to the department. When a transfer of ownership or operational control occurs, the old owner or operator shall comply with the requirements of sections 33-24-05-74 through 33-24-05-88 (financial requirements) until the new owner or operator has demonstrated that the owner or operator is complying with the requirements of those sections. The new owner or operator must demonstrate compliance with sections 33-24-05-74 through 33-24-05-88 requirements within six months of the date of the change of ownership or operational control of the facility. Upon demonstration to the department by the new owner or operator of compliance with sections 33-24-05-74 through 33-24-05-88, the department shall notify the old owner or operator that the owner or operator no longer needs to comply with sections 33-24-05-74 through 33-24-05-88 as of the date of demonstration.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-12. Modification or revocation and reissuance of permits. When the department receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit (see section 33-24-06-04), receives a request for revocation and reissuance under section 33-24-07-03 or conducts a review of the permit file), the department may determine whether one or more of the causes listed in subsections 1 and 2 for modification, or revocation and reissuance or both exist. If cause exists, the department may modify or revoke and reissue the permit accordingly, subject to the limitations of subsection 3, and may request an updated application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term (see section 33-24-07-03). If cause does not exist under this section, the department may not modify or revoke and reissue the permit, except on request of the permittee. If a permit modification is requested by the permittee, the department shall approve or deny the request according to the procedures of section 33-24-06-14. Otherwise, a draft permit must be prepared and other procedures in chapter 33-24-07 followed.

1. **Causes for modifications.** The following are causes for modification, but not revocation and reissuance of permits. However, the following may be causes for revocation and reissuance as well as modification when the permittee requests or agrees:

   a. Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

   b. Information. The department has received information that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance.

   c. New statutory requirements or regulations. The standards or regulations on which the permit was based have been changed by statute, through promulgation of new or amended standards or regulations, or by judicial decision after the permit was issued.

d. Compliance schedules. The department determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy.

e. Notwithstanding any other provision in this section, when a permit for a land disposal facility is reviewed by the department when it comes up for reissuance in accordance with section 33-24-06-06, the department shall modify the permit as necessary to assure that the facility continues to comply with the currently applicable requirements in chapters 33-24-01 through 33-24-07.

2. **Causes for modification or revocation and reissuance.** The following are causes to modify or, alternatively, revoke and reissue a permit:

a. Cause exists for termination under section 33-24-06-13, and the department determines that modification or revocation and reissuance is appropriate.

b. The department has received notification (as required in the permit, see subsection 4 of section 33-24-06-14) of a proposed transfer of the permit.

3. **Facility siting.** Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1991; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-13. Termination of permits and permit denial.

1. Termination of permits.

a. The following are causes for terminating a permit during its term, or for denying a permit renewal application:

(1) Noncompliance by the permittee with any condition of the permit;

(2) The permittee's failure in the application or during the permit issuance process to disclose fully all relevant factors or the permittee's misrepresentation of any relevant facts at any time; or

(3) A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.

b. The department shall follow the applicable procedures in chapter 33-24-07 in terminating any permit under this section.

2. Permit denial.

a. The department may, pursuant to the procedures in chapter 33-24-07, deny the permit application either in its entirety or as to the active life of a hazardous waste management facility or unit only.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-14. Permit modification at the request of the permittee.

1. **Class 1 modifications.**

   a. Except as provided in subdivision b, the permittee may put into effect class 1 modifications listed in appendix I of this section under the following conditions:

      (1) The permittee must notify the department concerning the modification by certified mail or other means that establish proof of delivery within seven calendar days after the change is put into effect. This notice must specify the changes being made to permit conditions or supporting documents referenced by the permit and must explain why they are necessary. Along with the notice, the permittee must provide applicable information required by section 33-24-06-17 and subsections 2 and 3 of section 33-24-06-19.

      (2) The permittee must send a notice of the modification to all persons on the facility mailing list, maintained by the department in accordance with chapter 33-24-07, and the appropriate units of state and local governments, as specified in section 33-24-07-06. This notification must be made within ninety calendar days after the change is put into effect. For the class 1 modifications that require prior department approval, the notification must be made within ninety calendar days after the department approves the request.

      (3) Any person may request the department to review, and the department may for cause reject, any class 1 modification. The department must inform the permittee by certified mail that a class 1 modification has been rejected, explaining the reasons for the rejection. If a class 1 modification has been rejected, the permittee must comply with the original permit conditions.

   b. Class 1 permit modifications identified in appendix I by an asterisk may be made only with the prior written approval of the department.

   c. For a class 1 permit modification, the permittee may elect to follow the procedures in subsection 2 of section 33-24-06-14 for class 2 modifications instead of the class 1 procedures. The permittee must inform the department of this decision in the notice required in subdivision a of subsection 2 of section 33-24-06-14.

2. **Class 2 modifications.**

   a. ~~Listed~~ For class 2 modifications listed in appendix I of this section, the permittee must submit a modification request to the department that:

      (1) Describes the exact change to be made to the permit conditions and supporting documents referenced by the permit;

      (2) Identifies that the modification is a class 2 modification;

      (3) Explains why the modification is needed; and

(4) Provides the applicable information required by section 33-24-06-17 and subsections 2 and 3 of section 33-24-06-19.

b. The permittee must send a notice of the modification request to all persons on the facility mailing list maintained by the department and to the appropriate units of state and local government as specified in section 33-24-07-06 and must publish this notice in a major local newspaper of general circulation. This notice must be mailed and published within seven days before or after the date of submission of the modification request, and the permittee must provide to the department evidence of the mailing and publication. The notice must include:

(1) Announcement of a sixty-day comment period, in accordance with subdivision e of subsection 2 of section 33-24-06-14, and the name and address of ~~an agency~~ a department contact to whom comments must be sent;

(2) Announcement of the date, time, and place for a public meeting held in accordance with subdivision d of subsection 2 of section 33-24-06-14;

(3) Name and telephone number of the permittee's contact person;

(4) Name and telephone number of a department contact person;

(5) Location where copies of the modification request and any supporting documents can be viewed and copied; and

(6) The following statement: "The permittee's compliance history during the life of the permit being modified is available from the department contact person."

c. The permittee must place a copy of the permit modification request and supporting documents in a location accessible to the public in the vicinity of the permitted facility.

d. The permittee must hold a public meeting no earlier than fifteen days after the publication of the notice required in subdivision b of subsection 2 and no later than fifteen days before the close of the sixty-day comment period. The meeting must be held to the extent practicable in the vicinity of the permitted facility.

e. The public must be provided sixty days to comment on the modification request. The comment period will begin on the date the permittee publishes the notice in the local newspaper. Comments should be submitted to the department contact identified in the public notice.

f. Notification request.

(1) No later than ninety days after receipt of the notification request, the department must:

(a) Approve the modification request, with or without changes, and modify the permit accordingly;

(b) Deny the request;

(c) Determine that the modification request must follow the procedures in subsection 3 of section 33-24-06-14 for class 3 modifications for the following reasons:

[1] There is significant public concern about the proposed modification; or

[2] The complex nature of the change requires the more extensive procedures of class 3;

(d) Approve the request, with or without changes, as a temporary authorization having a term of up to one hundred eighty days; or

(e) Notify the permittee that he or she will decide on the request within the next thirty days.

(2) If the department notifies the permittee of a thirty-day extension for a decision, the department must, no later than one hundred twenty days after receipt of the modification request:

(a) Approve the modification request with or without changes, and modify the permit accordingly;

(b) Deny the request; or

(c) Determine that the modification request must follow the procedures in subsection 3 of section 33-24-06-14 for class 3 modifications for the following reasons:

[1] There is significant public concern about the proposed modification; or

[2] The complex nature of the change requires the more extensive procedures of class 3.

(d) Approve the request, with or without changes, as a temporary authorization having a term of up to one hundred eighty days.

(3) If the department fails to make one of the decisions specified in paragraph 2 of subdivision f of subsection 2 by the one hundred twentieth day after receipt of the modification request, the permittee is automatically authorized to conduct the activities described in the modification request for up to one hundred eighty days, without formal department action. The authorized activities must be conducted as described in the permit modification request and must be in compliance with all appropriate standards of section 33-24-06-16. If the department approves, with or without changes, or denies the modification request during the term of the temporary or automatic authorization provided for in paragraph 1, 2, or 3 of subdivision f of subsection 2, such action cancels the temporary or automatic authorization.

(4) The following applies:

(a) In the case of an automatic authorization under paragraph 3 of subdivision f of subsection 6, or a temporary authorization under subparagraph d of paragraph 1 of subdivision f of subsection 2 or subparagraph d of paragraph 2, if the department has not made a final approval or denial of the modification request by the date fifty days prior to the end of the temporary or automatic authorization, the permittee must within seven days of that time send a notification to persons on the facility mailing list, and make a reasonable

effort to notify other persons who submitted written comments on the modification request, that:

[1] The permittee has been authorized temporarily to conduct the activities described in the permit modification request; and

[2] Unless the department acts to give final approval or denial of the request by the end of the authorization period, the permittee will receive authorization to conduct such activities for the life of the permit.

(b) If the owner or operator fails to notify the public by the date specified in subparagraph a of paragraph 4 of subdivision f of subsection 2, the effective date of the permanent authorization will be deferred until fifty days after the owner or operator notifies the public.

(5) Except as provided in paragraph 7 of subdivision f of subsection 2, if the department does not finally approve or deny a modification request before the end of the automatic or temporary authorization period or reclassify the modification as a class 3, the permittee is authorized to conduct the activities described in the permit modification request for the life of the permit unless modified later under section 33-24-06-12 or 33-24-06-14. The activities authorized under this paragraph must be conducted as described in the permit modification request and must be in compliance with all appropriate standards of section 33-24-06-16.

(6) In making a decision to approve or deny a modification request including a decision to issue a temporary authorization or to reclassify a modification as a class 3, the department must consider all written comments submitted to the department during the public comment period and must respond in writing to all significant comments in his or her decision.

(7) With the written consent of the permittee, the department may extend indefinitely or for a specified period the time periods for final approval or denial of a modification request or for reclassifying a modification as a class 3.

g. The department may deny or change the terms of a class 2 permit modification request under paragraphs 1 through 3 of subdivision f of subsection 2 for the following reasons:

(1) Modification request is incomplete;

(2) The requested modification does not comply with the appropriate requirements of chapter 33-24-05 or other applicable requirements; or

(3) The conditions of the modification failed to protect human health and the environment.

h. The permittee may perform any construction associated with a class 2 permit modification request beginning sixty days after the submission of the request unless the department establishes a later date for commencing construction and informs the permittee in writing before day sixty.

3. **Class 3 modifications.**

a. For class 3 modifications listed in appendix I of this section, the permittee must submit a modification request to the department that:

(1) Describes the exact change to be made to the permit conditions and supporting documents referenced by the permit;

(2) Identifies that the modification is a class 3 modification;

(3) Explains why the modification is needed; and

(4) Provides the applicable information required by section 33-24-06-17 and subsections 2, 3, and 4 of section 33-24-06-19.

b. The permittee must send a notice of the modification request to all persons on the facility mailing list maintained by the department and to the appropriate units of state and local government as specified in section 33-24-07-06 and must publish this notice in a major local newspaper of general circulation. This notice must be mailed and published within seven days before or after the date of submission of the modification request, and the permittee must provide to the department evidence of the mailing and publication. The notice must include:

(1) Announcement of a sixty-day comment period, and a name and address of a department contact to whom comments must be sent;

(2) Announcement of the date, time, and place for a public meeting on the modification request, in accordance with subdivision d of subsection 3 of section 33-24-06-14;

(3) Name and telephone number of the permittee's contact person;

(4) Name and telephone number of a department contact person;

(5) Location where copies of the modification request and any supporting documents can be viewed and copied; and

(6) The following statement: "The permittee's compliance history during the life of the permit being modified is available from the department contact person."

c. The permittee must place a copy of the permit modification request and supporting documents in a location accessible to the public in the vicinity of the permitted facility.

d. The permittee must hold a public meeting no earlier than fifteen days after the publication of the notice required in subdivision b of subsection 3 and no later than fifteen days before the close of the sixty-day comment period. The meeting must be held to the extent practicable in the vicinity of the permitted facility.

e. The public must be provided at least sixty days to comment on modification requests. The comment period will begin on the date the permittee publishes the notice in the local newspaper. Comments should be submitted to the department contact identified in the notice.

f. After the conclusion of the sixty-day comment period, the department must grant or deny the permit modification request according to the permit modification procedures of chapter 33-24-07. In addition, the department must consider and respond to all significant written comments received during the sixty-day comment period.

4. **Other modifications.**

a. In the case of modifications not explicitly listed in appendix I of this section, the permittee may submit a class 3 modification request to the department, or the permittee may request a determination by the department that the modification should be reviewed and approved as a class 1 or class 2 modification. If the permittee requests that the modification be classified as a class 1 or 2 modification, the permittee must provide the department with the necessary information to support the requested classification.

b. The department shall make the determination described in subdivision a of subsection 4 as promptly as practicable. In determining the appropriate class for a specific modification, the department shall consider the similarity of the modification to other modifications codified in appendix I and the following criteria:

(1) Class 1 modifications apply to minor changes to keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of class 1 modifications, the department may require prior approval.

(2) Class 2 modifications apply to changes that are necessary to enable a permittee to respond, in a timely manner, to:

(a) Common variations in the types and quantities of the wastes managed under the facility permit;

(b) Technological advancements; and

(c) Changes necessary to comply with new regulations, where these changes can be implemented without substantially changing design specifications or management practices in the permit.

(3) Class 3 modifications substantially alter the facility or its operation.

5. **Temporary authorizations.**

a. Upon request of the permittee, the department may, without prior public notice and comment, grant the permittee a temporary authorization in accordance with this section. Temporary authorizations must have a term of not more than one hundred eighty days.

b. Temporary authorizations.

(1) The permittee may request a temporary authorization for:

(a) Any class 2 modification meeting the criteria of paragraph 2 of subdivision c of subsection 5, and

(b) Any class 3 modification that meets the criteria in subparagraph a or b of paragraph 2 of subdivision c; or that meets the criteria in subparagraphs c through e of paragraph 2 of subdivision c and provides improved management or treatment of a hazardous waste already listed in the facility permit.

(2) The temporary authorization request must include:

(a) A description of the activities to be conducted under the temporary authorization;

(b) An explanation of why the temporary authorization is necessary; and

(c) Sufficient information to ensure compliance with chapter 33-24-05 standards.

(3) The permittee must send a notice about the temporary authorization request to all persons on the facility mailing list maintained by the department and to appropriate units of state and local governments as specified in section 33-24-07-06. This notification must be made within seven days of submission of the authorization request.

c. The department shall approve or deny the temporary authorization as quickly as practical. To ensure a temporary authorization, the department must find:

(1) The authorized activities are in compliance with the standards of chapter 33-24-05.

(2) The temporary authorization is necessary to achieve one of the following objectives before action is likely to be taken on a modification request:

(a) To facilitate timely implementation of closure or corrective action activities;

(b) To allow treatment or storage in tanks or containers, or in containment buildings, ~~of restricted wastes~~ in accordance with chapter 33-24-05;

(c) To prevent disruption of ongoing waste management activities;

(d) To enable the permittee to respond to sudden changes in the types or quantities of the wastes managed under the facility permit; or

(e) To facilitate other changes to protect human health and the environment.

d. A temporary authorization may be issued for one additional term of up to one hundred eighty days provided that the permittee has requested a class 2 or 3 permit modification for the activity covered in the temporary authorization, and:

(1) The reissued temporary authorization constitutes the department's decision on a class 2 permit modification in accordance with subparagraph d of paragraph 1 of subdivision f of subsection 2 or subparagraph d of paragraph 2; or

(2) The department determines that the reissued temporary authorization involving a class 3 permit modification request is warranted to allow the authorized activities to continue while the modification procedures of subdivision 3 are conducted.

6. **Public notice and appeals of permit modification decisions.**

a. The department shall notify persons on the facility mailing list and appropriate units of state and local government within ten days of any decision under this section to grant or deny a class 2 or 3 permit modification request. The department shall also notify such persons within ten days after an automatic authorization for a class 2 modification goes into effect under paragraph 3 or 4 of subdivision f of subsection 2 of section 33-24-06-14.

b. The department's decision to grant or deny a class 2 or 3 permit modification request under this section may be appealed under the permit appeal procedures of section 33-24-07-14.

c. An automatic authorization that goes into effect under paragraph 3 or 5 of subdivision f of subsection 2 of section 33-24-06-14 may be appealed under the permit appeal procedure of section 33-24-07-14; however the permittee must continue to conduct the activities pursuant to the automatic authorization until the appeal has been granted pursuant to section 33-24-07-14, not withstanding the provisions of section 33-24-07-11.

7. **Newly regulated wastes and units.**

a. The permittee is authorized to continue to manage wastes listed or identified as hazardous under chapter 33-24-02 or to continue to manage hazardous waste in units newly regulated as hazardous waste management units if:

(1) The unit was in existence as a hazardous waste facility with respect to the newly listed or characterized waste or newly regulated waste management unit on the effective date on the final rule listing or identifying the waste, or regulating the unit;

(2) The permittee submits a class 1 modification request on or before the date on which the waste or unit becomes subject to the new requirements;

(3) The permittee is in compliance with the applicable standards of section 33-24-06-16 and chapter 33-24-05;

(4) The permittee also submits a complete class 2 or 3 modification request within one hundred eighty days of the effective date of the rule listing or identifying the waste or subjecting the unit to hazardous waste management standards; and

(5) In the case of land disposal units, the permittee certifies that each such unit is in compliance with all applicable ground water monitoring and financial responsibility requirements in article 33-24 on the date twelve months after the effective date of the rule identifying or listing the waste as hazardous or regulating the unit as a hazardous waste management unit. If the owner or operator fails to certify compliance with all these requirements, the owner or operator shall lose authority to operate under this chapter.

b. New wastes or units added to a facility's permit under this section do not constitute expansions for the purpose of the twenty-five percent capacity expansion limit for class 2 modifications.

8. **Permit modification list.**

The department must maintain a list of all approved permit modifications and must publish a notice once a year in a statewide newspaper that an updated list is available for review.

History: Effective December 1, 1991; amended effective January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-15. Noncompliance and program reporting by the department. The department shall submit any reports required under this section to the environmental protection agency regional administrator. For purposes of this section only, hazardous waste permittees includes facilities with operating status defined by subsection 1 of section 33-24-06-16, when appropriate.

1. **Quarterly reports.** The department shall submit quarterly narrative reports for major facilities as follows:

   a. Format. The report must use the following format:

      (1) An alphabetized list by permittee name. When two or more permittees have the same name, the lowest permit number must be entered first.

      (2) For each entry on a list, include the following information in the following order:

         (a) Name, location, and permit number of the noncomplying permittee.

         (b) A brief description and date of each instance of noncompliance for that permittee. Instances of noncompliance may include one or more of the kinds set forth in subdivision b.

         (c) The dates and a brief description of the actions taken by the department to ensure compliance.

         (d) Status of the instances of noncompliance with the date of the review of the status or the date of resolution.

         (e) Any details which tend to explain or mitigate the instances of noncompliance.

   b. Instances of noncompliance to be reported. Any instances of noncompliance within the following categories must be reported in successive reports until the noncompliance is reported as resolved. Once noncompliance is reported as resolved it need not appear in subsequent reports.

      (1) Failure to complete construction elements. When the permittee has failed to complete, by the date specified in the permit, an element of a compliance schedule involving either planning for construction (~~e.g.,~~ for example, award of a contract, preliminary plans), or a construction step (for example, begin construction, attain operation level); and the permittee has not returned to compliance by accomplishing the requirement of the schedule within thirty days from the date a compliance schedule is due under the permit.

      (2) Modifications to schedules of compliance. When a schedule of compliance in the permit has been modified under section 33-24-06-12 or 33-24-06-14 because of the permittees noncompliance.

(3) Failure to complete or provide compliance schedule or monitoring reports. When the permittee has failed to complete or provide a report required in a permit compliance schedule (for example, progress report or notice of noncompliance or compliance), or a monitoring report; and the permittee has not submitted the complete report within thirty days from the date it is due under the permit for compliance schedules, or from the date specified in the permit for monitoring reports.

(4) Deficient reports. When the required reports provided by the permittee are so deficient as to cause misunderstanding by the department and thus impede the review of the status of compliance.

(5) Noncompliance with other permit requirements. Noncompliance must be reported in the following circumstances:

(a) Whenever the permittee has violated a permit requirement (other than reported under paragraph 1 or 2), and has not returned to compliance within forty-five days from the date reporting of noncompliance was due under the permit; or

(b) When the department determines that a pattern of noncompliance exists for a major facility permittee over the most recent four consecutive reporting periods. This pattern includes any violation of the same requirement in two consecutive reporting periods, and any violation of one or more requirements in each of four consecutive reporting periods; or

(c) When the department determines significant permit noncompliance or other significant event has occurred, such as a fire or explosion or migration of fluids into an underground source of drinking water.

(6) All other. Statistical information must be reported quarterly on all other instances of noncompliance by major facilities with permit requirements not otherwise reported under this subsection.

c. The department shall submit, in a manner and form prescribed by the regional administrator, quarterly reports concerning noncompliance by transporters (for example, recordkeeping requirements), and by generators that send their wastes to offsite treatment, storage, or disposal facilities.

2. **Annual reports.**

a. Annual noncompliance report. The department shall submit statistical reports on nonmajor hazardous waste management permittees indicating the total number reviewed, the number of noncomplying nonmajor permittees, the number of enforcement actions, and number of permit modifications extending compliance deadlines. The statistical information must be organized to follow the types of noncompliance listed in subsection 1.

b. In addition to the annual noncompliance report, the department shall prepare a "program report" which contains information (in a manner and form prescribed by the regional administrator) on generators and transporters, and the permit status of regulated facilities. The department shall include on a biennial basis summary information on the quantities and types of hazardous waste generated, transported, stored, treated, and disposed during the preceding odd-numbered year. This summary information must be reported in a manner and form prescribed by

the regional administrator and according to environmental protection agency characteristics and lists of hazardous wastes at 40 CFR part 261.

3. **Schedule.**

   a. For all quarterly reports, on the last working day of May, August, November, and February, the department shall submit to the regional administrator information concerning noncompliance with the hazardous waste management requirements in this state in accordance with the following schedule (Reports must also be made available to the public for inspection and copying on this date):

January, February, and March	May 31
April, May, and June	August 31
July, August, and September	November 30
October, November, and December	February 28

   b. For annual reports, the period shall be for one calendar year ending December thirty-first, with reports completed and available to the public no more than sixty days later.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04

33-24-06-16. Operating status prior to final administrative disposition of the permit application.

1. Qualifying for operating status prior to final administrative disposition of the permit application. Any person who owns or operates an existing hazardous waste management facility shall be treated as having been issued a permit to the extent that person has:

   a. Complied with section 3010(a) of the Resource Conservation and Recovery Act by filing a notification of hazardous waste activity form with the department.

   b. Complied with the requirements of subsection 7 and 8 of section 33-24-06-01 governing submission of part A of the application.

2. Failure to qualify for operating status prior to final administrative disposition of the permit application. If the department has reason to believe upon examination of a part A application that it fails to meet the requirements of subsection 1 of section 33-24-06-17, it shall notify the owner or operator in writing of the apparent deficiency. Such notice must specify the grounds for the department's belief that the application is deficient. The owner or operator has thirty days from receipt to respond to such a notification and to explain or cure the alleged deficiency in its part A application. If, after such notification and opportunity for response, the department determines that the application is deficient it may take appropriate enforcement action.

3. Coverage. During the period of operating status prior to final administrative disposition of the permit application, the facility may not:

   a. Treat, store, or dispose of hazardous waste not specified in part A of the permit application;

   b. Employ processes not specified in part A of the permit application; or

c. Exceed the design capacities specified in part A of the permit application.

4. Changes during operating status prior to final administrative disposition of the permit application.

a. New hazardous waste not previously identified in part A of the permit application may be treated, stored, or disposed of at a facility if the owner or operator submits a revised part A of the permit application prior to such a change.

b. Increases in the design capacity of processes used at a facility may be made if the owner or operator submits a revised part A of the permit application prior to such a change (along with a justification explaining the need for the change) and the department approves the change because of a lack of available treatment, storage, or disposal capacity at other hazardous waste management facilities, or the change is necessary to comply with federal, state, or local requirements.

c. Changes in the processes for the treatment, storage, or disposal of hazardous waste may be made at a facility or additional processes may be added if the owner or operator submits a revised part A of the permit application prior to such a change (along with a justification explaining the need for the change) and the department approves the change because:

(1) It is necessary to prevent a threat to human health or the environment because of an emergency situation; or

(2) It is necessary to comply with federal, state, or local laws or regulations.

d. Changes in the ownership or operational control of a facility may be made if the new owner or operator submits a revised part A permit application no later than ninety days prior to the scheduled change. When a transfer of ownership or operational control of a facility occurs, the old owner or operator shall comply with the requirements of sections 33-24-05-74 through 33-24-05-88 (financial requirements), until the new owner or operator has demonstrated to the department that the owner or operator is complying with the requirements of sections 33-24-05-74 through 33-24-05-88. The new owner or operator must demonstrate compliance with sections 33-24-05-74 through 33-24-05-88 within six months of the date of the change in the ownership or operational control of the facility. Upon demonstration to the department by the new owner or operator of compliance with sections 33-24-05-74 through 33-24-05-88, the department shall notify the old owner or operator in writing that the owner or operator no longer needs to comply with sections 33-24-05-74 through 33-24-05-88 as of the date of demonstration. All other duties concerning operating status prior to final administrative disposition of the permit application are transferred effective immediately upon the date of the change of ownership or operational control of the facility.

e. In no event may changes be made to a hazardous waste facility during operating status prior to final administrative disposition of the permit application which amounts to reconstruction of the facility. Reconstruction occurs when the capital investment and the changes to the facility exceed fifty percent of the capital cost of a comparable entirely new hazardous waste management facility. Changes prohibited under this section do not include changes to treat or store in containers, tanks, or containment buildings hazardous waste subject to land disposal restrictions imposed by sections 33-24-05-250 through 33-

24-05-300 or Resource Conservation and Recovery Act section 3004, provided that such changes are made solely for the purpose of complying with sections 33-24-05-250 through 33-24-05-300 or Resource Conservation and Recovery Act section 3004.

5. During operating status prior to final administrative disposition of the permit application, owners or operators shall comply with the federal interim status standards, 40 CFR part 265 and 270.

6. Operating status prior to final administrative disposition of the permit application terminates when:

   a. Final administrative disposition of a permit application is made; or

   b. Operating status prior to final administrative disposition of the permit application is terminated as provided in paragraph 5 subdivision a of subsection 7 of section 33-24-06-01.

7. Subsection 1 does not apply to any facility which has been previously denied a hazardous waste permit or if authority to operate the facility under article 33-24 has been previously terminated.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-17. Contents of a permit application.

1. Part A of the application must include the following information:

   a. The activities conducted by the applicant which require it to obtain a permit.

   b. Name, mailing address, and location of the facility for which the application is submitted.

   c. Up to four standard industrial codes which best reflect the principle products or services provided by the facility.

   d. The operator's name, address, telephone number, ownership status and status as a federal, state, private, public, or other entity.

   e. A listing of all permits or construction approvals at all governmental levels received or applied for under any of the following programs:

      (1) Hazardous waste management program under the Resource Conservation and Recovery Act.

      (2) Underground injection control program under the Safe Drinking Water Act.

      (3) North Dakota pollutant discharge elimination system program under the Clean Water Act.

      (4) Prevention of significant deterioration program under the Clean Air Act.

      (5) Nonattainment program under the Clean Air Act.

(6) National emissions standards for hazardous air pollutants preconstruction approval under the Clean Air Act.

(7) Dredge or fill permits under section 404 of the Clean Water Act.

(8) Other relevant environmental permits.

f. A topographic map (or other map if a topographic map is unavailable), extending one mile [1.61 kilometers] beyond the property boundaries of the source, depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment, storage, or disposal facilities; each well where fluids from the facility are injected underground; and those ~~well~~ wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant in the map area.

g. A brief description of the nature of the business.

h. The latitude and longitude of the facility.

i. The name, address, and telephone number of the owner of the facility.

j. An indication of whether the facility is new or existing and whether it is a first or revised application.

k. For existing facilities, a scale drawing of the facility showing the location of all past, present, and future treatment, storage, and disposal areas.

l. For existing facilities, photographs of the facility clearly delineating all existing structures; existing treatment, storage, and disposal areas; and types of future treatment, storage, and disposal areas.

m. A description of the processes to be used for treating, storing and disposing of hazardous waste, and the design capacity of these items.

n. A specification of the hazardous wastes listed or designated under chapter 33-24-02 to be treated, stored, or disposed at the facility; an estimate of the quantity of such waste to be treated, stored, or disposed annually; and a general description of the processes to be used for such wastes.

o. For hazardous debris, a description of the debris categories and contaminant categories to be treated, stored, or disposed of at the facility.

2. The information requirements for part B of the permit application presented below reflect the standards in chapter 33-24-05. These information requirements are necessary in order for the department to determine compliance with chapter 33-24-05 standards. If owners and operators of hazardous waste management facilities can demonstrate that the information required for part B of the application cannot be provided to the extent required, the department may make allowances for submission of such information on a case-by-case basis. Information required for part B of the application must be submitted to the department and signed in accordance with requirements in section 33-24-06-03. Certain technical data, such as design drawings and specifications, and engineering studies must be certified by a registered professional engineer. Part B of the application includes the following (information in subdivisions a through r is required for all hazardous waste management facilities except as section 33-24-05-01 provides otherwise; that in

subdivisions s through y and hh is additional information required for specific types of facilities; and that in subdivisions z through gg is additional information regarding protection of ground water, and is required for surface impoundments, piles, land treatment units, and landfills, except as otherwise provided in subsection 2 of section 33-24-05-47):

a. General description of the facility.

b. Chemical and physical analyses of the hazardous waste and hazardous debris to be handled at the facility. At a minimum, these analyses must contain all the information which must be known to treat, store, or dispose of the waste properly in accordance with chapter 33-24-05.

c. A copy of the waste analysis plan required by subsection 2 of section 33-24-05-04 and, if applicable, subsection 3 of section 33-24-05-04.

d. A description of the security procedures and equipment required by section 33-24-05-05, or a justification demonstrating the reason for requesting a waiver of this requirement.

e. A copy of the general inspection schedule required by subsection 2 of section 33-24-05-06; include, where applicable, as part of the inspection schedule, specific requirements in sections 33-24-05-93, subsection 9 of section 33-24-05-106, sections 33-24-05-108, 33-24-05-~~117~~ 120, 33-24-05-132, 33-24-05-163, 33-24-05-178, 33-24-05-302, 33-24-05-403, 33-24-05-422, 33-24-05-423, ~~and~~ 33-24-05-428, 33-24-05-454, 33-24-05-455, 33-24-05-456, and 33-24-05-458.

f. A justification of any request for waivers of the preparedness and prevention requirements of sections 33-24-05-15 through 33-24-05-25.

g. A copy of the contingency plan required by sections 33-24-05-26 through 33-24-05-36. Include, where applicable, as part of the contingency plan, specific requirements in sections 33-24-05-110 and 33-24-05-~~118~~ 121.

h. A description of procedures, structures, or equipment used at the facility to:

   (1) Prevent hazards in unloading operations, ~~e.g.,~~ for example, ramps and special forklifts;

   (2) Prevent runoff from hazardous waste handling areas to other areas of the facility or environment, or to prevent flooding, ~~e.g.,~~ for example, berms, dikes, and trenches;

   (3) Prevent contamination of water supplies;

   (4) Mitigate effects of equipment failure and power outages;

   (5) Prevent undue exposure of personnel to hazardous waste (~~e.g.,~~ for example, protective clothing); and

   (6) Prevent releases to atmosphere.

i. A description of precautions to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes as required to demonstrate compliance with section 33-24-05-08, including documentation demonstrating compliance with subsection 3 of section 33-24-05-08.

j. Traffic pattern, estimated volume (number, type of vehicles) and control (~~e.g.,~~ for example, show turns across traffic lanes and stacking lanes, if appropriate); describe access road~~,~~ surfacing and load-bearing capacity; show traffic control signals.

k. [RESERVED]

l. An outline of both the introductory and continuing programs by owners or operators to prepare persons to operate and maintain a hazardous waste management facility in a safe manner as required to demonstrate compliance with section 33-24-05-07. A brief description of how training will be designed to meet actual job tasks in accordance with requirements in subdivision c of subsection 1 of section 33-24-05-07.

m. A copy of the closure plan and where applicable, the postclosure plan required by sections 33-24-05-61, 33-24-05-67, and 33-24-05-110. Include, where applicable, as part of the plans, specific requirements in sections 33-24-05-97, 33-24-05-110, 33-24-05-~~119~~ 122, 33-24-05-135, 33-24-05-151, 33-24-05-167, 33-24-05-180, 33-24-05-301, and 33-24-05-303.

n. For hazardous waste disposal units that have been closed, documentation that notices required under section 33-24-05-68 have been filed.

o. The most recent closure and, where applicable, postclosure cost estimate for the facility prepared in accordance with section 33-24-05-76 and a copy of the documentation required to demonstrate financial assurance under section 33-24-05-77. For a new facility, a copy of the required documentation may be submitted sixty days prior to the initial receipt of hazardous waste, if that is later than the submission of the part B application.

p. Where applicable, a copy of the insurance policy or other documentation which comprises compliance with the requirements of section 33-24-05-79. For a new facility, documentation showing the amount of insurance meeting the specification of subsection 1, and subsection 2 if applicable, of section 33-24-05-79, that the owner or operator plans to have in effect before initial receipt of hazardous waste for treatment, storage, or disposal. A request for a variance in the amount of required coverage, for a new or existing facility, may be submitted as specified in subsection 3 of section 33-24-05-79.

q. A topographic map showing a distance of one thousand feet [304.8 meters] around the facility at a scale of two and five-tenths centimeters [1 inch] equal to not more than sixty-one meters [200 feet]. (The department may allow the use of other scales on a case-by-case basis.) Contours must be shown on the map. The contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operational unit of the facility. For example, contours with an interval of one and five-tenths meters [5 feet], if relief is greater than six and one-tenth meters [20 feet], or an interval of six-tenths meter [2 feet], if relief is less than six and one-tenth meters [20 feet]. Owners and operators of hazardous waste management facilities located in mountainous areas should use larger contour intervals to adequately show topographic profiles of the facilities. The map must clearly show the following:

(1) Map scale and date.

(2) One hundred-year floodplain area.

(3) Surface waters including intermittent streams.

(4) Surrounding land uses (residential, commercial, agricultural, recreational).

(5) A wind rose, ~~i.e.,~~ for example, prevailing wind speed and direction.

(6) Orientation of the map (north arrow).

(7) Legal boundaries of the hazardous waste management facility site.

(8) Access control (fences, gates).

(9) Injection and withdrawal wells, both onsite and offsite.

(10) Buildings; treatment, storage, or disposal operations; or other structures (recreation areas, runoff control systems, access and internal roads, storm, sanitary, and processed sewerage systems, loading and unloading areas, fire control facilities, etc.).

(11) Barriers for drainage or flood control.

(12) Location of operational units within the hazardous waste management facility site, where hazardous waste is (or will be) treated, stored, or disposed (include equipment cleanup areas).

r. Applicants may be required to submit such information as may be necessary to enable the department to carry out its duties under federal or other state laws as required in section 33-24-06-09.

s. For facilities that store containers of hazardous waste, except as otherwise provided in section 33-24-05-89:

(1) A description of the containment system to demonstrate compliance with section 33-24-05-94. Show at least the following:

(a) Basic design parameters, dimensions, and materials of construction.

(b) How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system.

(c) Capacity of the containment system relative to the number and volume of containers to be stored.

(d) Provisions for preventing or managing run-on.

(e) How accumulated liquids can be analyzed and removed to prevent overflow.

(2) For storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with subsection 3 of section 33-24-05-94, including:

(a) Test procedures and results or other documentation or information to show that the wastes do not contain free liquids; and

(b) A description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids.

(3) Sketches, drawings, or data demonstrating compliance with section 33-24-05-95 (location of buffer zone and containers holding ignitable or reactive wastes) and subsection 3 of section 33-24-05-96 (location of incompatible wastes), where applicable.

(4) Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with subsections 1 and 2 of section 33-24-05-96 and subsections 2 and 3 of section 33-24-05-08.

(5) Information on air emission control equipment as required in subdivision hh.

t. Except as otherwise provided in section 33-24-05-103, owners and operators of facilities that use tanks to store or treat hazardous waste shall provide the following additional information:

(1) A written assessment that is reviewed and certified by an independent, qualified, registered professional engineer to the structural integrity and suitability for handling hazardous waste of each tank system, as required under sections 33-24-05-104 and 33-24-05-105;

(2) Dimensions and capacity of each tank;

(3) Description of feed systems, safety cutoff, bypass systems, and pressure controls (~~e.g.,~~ for example, vents);

(4) A diagram of piping, instrumentation, and process flow for each tank system;

(5) A description of materials and equipment used to provide external corrosion protection, as required under paragraph 2 of subdivision c of subsection 1 of section 33-24-05-105;

(6) For new tank systems, a detailed description of how the tank systems will be installed in compliance with subsections 2, 3, 4, and 5 of section 33-24-05-105;

(7) Detailed plans and description of how the secondary containment system for each tank system is or will be designed, constructed, and operated to meet the requirements of subsections 1, 2, 3, 4, 5, and 6 of section 33-24-05-106;

(8) For tank systems for which a variance from the requirements of section 33-24-05-106 is sought (as provided by subsection 7 of section 33-24-05-106):

(a) Detailed plans and engineering and hydrogeologic reports, as appropriate, describe alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous waste or hazardous constituents into the ground water or surface water during the life of the facility, or

(b) A detailed assessment of the substantial present or potential hazards posed to human health or the environment should a release enter the environment.

(9) Description of controls and practices to prevent spills and overflows, as required under subsection 2 of section 33-24-05-107; and

(10) For tank systems in which ignitable, reactive, or incompatible wastes are to be stored or treated, a description of how operating procedures and tank system and facility design will achieve compliance with the requirements of ~~section~~ sections 33-24-05-111 and 33-24-05-112.

(11) Information on air emission control equipment as required in subdivision hh.

u. For facilities that store, treat or dispose of hazardous waste in surface impoundments, except as otherwise provided in section 33-24-05-01:

(1) A list of the hazardous wastes placed or to be placed in each surface impoundment.

(2) Detailed plans and an engineering report describing how the surface impoundment is or will be designed, constructed, operated, and maintained to meet the requirements of sections 33-24-05-10, 33-24-05-~~116~~ 119, 33-24-05-~~123~~ 126, and 33-24-05-~~124~~ 127. This submission must address the following items as specified in that section.

(a) The liner system. Submit detailed plans and an engineering report explaining the location of the saturated zone in relation to the surface impoundment, and the design of the double-liner system that incorporates a leak detection system between the liners. If an exemption from the requirement for a liner system is sought as provided by subsection 2 of section 33-24-05-~~116~~ 119, submit detailed plans and engineering and hydrogeologic reports as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the ground water or surface water at any future time. If an exemption is sought from the design and operating requirements for an existing portion of the surface impoundment as provided by subsection 3 of section 33-24-05-~~116~~ 119, the owner or operator shall submit detailed plans and engineering and hydrogeologic reports as appropriate, describing how the existing design and operating practices, together with the location of the facility will prevent migration of any hazardous constituents into the ground water or surface water during the active life of the facility (for impoundments to be closed in accordance with subdivision a of subsection 1 of section 33-24-05-~~119~~ 122), or the active life and the postclosure care period (for impoundments to be closed in accordance with subdivision b of subsection 1 of section 33-24-05-~~119~~ 122).

(b) The double liner and leak (leachate) detection, collection, and removal system, if the surface impoundment must meet the requirements of subsection 3 of section 33-24-05-~~116~~ 119. If an exemption from the requirements for double liners and a leak detection, collection, and removal system or alternative

design is sought as provided by subsections 4, 5, or 6 of section 33-24-05-~~116~~ 119, submit appropriate information.

(c) If the leak detection system is located in a saturated zone, submit detailed plans and an engineering report explaining the leak detection system design and operation, and the location of the saturated zone in relation to the leak detection system.

(d) The construction quality assurance (CQA) plan if required under section 33-24-05-10.

(e) Proposed action leakage rate, with rationale, if required under section 33-24-05-~~123~~ 126, and response action plan, if required under section 33-24-05-~~124~~ 127.

(f) Prevention of overtopping.

(g) Structural integrity of dikes.

(3) A description of how each surface impoundment, including the double liner system, leak detection system, cover system, and appurtenances for control of overtopping will be inspected in order to meet the requirements of subsections 1, 2, and 4 of section 33-24-05-~~117~~ 120. This information should be included in the inspection plan submitted under subdivision e of subsection 2 of this section.

(4) A certification by a qualified engineer which attests to the structural integrity of each dike as required under subsection 3 of section 33-24-05-~~117~~ 120. For new units, the owner or operator must submit a statement by a qualified engineer that the engineer will provide such a certification upon completion of construction in accordance with the plans and specifications.

(5) A description of the procedure to be used for removing a surface impoundment from service as required under subsections 2 and 3 of section 33-24-05-~~118~~ 121. This information should be included in the contingency plan submitted under subdivision g of subsection 2 of this section.

(6) A description of how hazardous waste residues and contaminated materials will be removed from the unit at closure as required under subdivision a of subsection 1 of section 33-24-05-~~119~~ 122. For any wastes not to be removed from the unit upon closure, the owner or operator shall submit detailed plans and an engineering report describing how subsection 2 and subdivision b of subsection 1 of section 33-24-05-~~118~~ 122 will be complied with. This information should be included in the closure plan and where applicable, the postclosure plan submitted under subdivision m of subsection 2 of this section.

(7) If ignitable or reactive wastes are to be placed in a surface impoundment an explanation of how section 33-24-05-~~120~~ 123 will be complied with.

(8) If incompatible wastes or incompatible wastes and materials will be placed in the surface impoundment, an explanation of how section 33-24-05-~~121~~ 124 will be complied with.

(9) A waste management plan for hazardous wastes F020, F021, F022, F023, F026, and F027 describing how the surface impoundment is or will be designed, constructed, operated, and maintained to meet the requirements of section 33-24-05-~~122~~ 125. This submission must address the following items as specified in section 33-24-05-~~122~~ 125:

(a) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere.

(b) The attenuative properties of underlying and surrounding soils or other materials.

(c) The mobilizing properties of other materials codisposed with these wastes.

(d) The effectiveness of additional treatment, design, or monitoring techniques.

(10) Information on air emission control equipment as required in subdivision hh.

v. For facilities that treat or store hazardous waste in waste piles, except as otherwise provided in section 33-24-05-01:

(1) A list of hazardous wastes placed, or to be placed, in each waste pile.

(2) If an exemption is sought to section 33-24-05-131 and sections 33-24-05-47 through 33-24-05-58, as provided by subsection 3 of section 33-24-05-130 or subdivision b of subsection 2 of section 33-25-05-47, an explanation of how the standards of subsection 3 of section 33-24-05-130 will be complied with or detailed plans and an engineering report describing how the requirements of subdivision b of subsection 2 of section 33-24-05-47 will be met.

(3) Detailed plans and an engineering report describing how the pile is designed and is or will be constructed, operated, and maintained to meet the requirements of sections 33-24-05-10, 33-24-05-131, 33-24-05-137, and 33-24-05-138. This submission must address the following items as specified in that section:

(a) The liner system.

[1] The liner system (except for an existing portion of a waste pile), if the waste pile must meet the requirements of subsection 1 of section 33-24-05-131. If an exemption from the requirement for a liner is sought as provided by subsection 2 of section 33-24-05-131, submit detailed plans, and engineering and hydrogeological reports, as appropriate, describing alternate designs and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the ground water or surface water at any future time;

[2] The double liner and leak (leachate) detection, collection, and removal system, if the waste pile must meet the requirements of subsection 3 of section 33-24-

05-131. If an exemption from the requirements for double liners and a leak detection, collection, and removal system or alternative design is sought as provided by subsection 4, 5, or 6 of section 33-24-05-131, submit appropriate information;

[3] If the leak detection system is located in a saturated zone, submit detailed plans and an engineering report explaining the leak detection system design and operation, and the location of the saturated zone in relation to the leak detection system;

[4] The construction quality assurance (CQA) plan if required under section 33-24-05-10;

[5] Proposed action leakage rate, with rationale, if required under section 33-24-05-137, and response action plan, if required under section 33-24-05-138;

(b) Control of run-on.

(c) Control of runoff.

(d) Management of collection and holding units associated with run-on and runoff control systems.

(e) Control of wind dispersal of particulate matter, where applicable.

(4) A description of how each waste pile, including the double liner system, leachate collection and removal system, leak detection system, cover system, and appurtenances for control of run-on and runoff, will be inspected in order to meet the requirements of subsections 1, 2, and 3 of section 33-24-05-132. This information should be included in the inspection plan submitted under subdivision e of subsection 2 of this section.

(5) If treatment is carried out on or in the pile, details of the process and equipment used, and the nature and quality of the residuals.

(6) If ignitable or reactive wastes are to be placed in a waste pile an explanation of how the requirements of section 33-24-05-133 will be complied with.

(7) If incompatible wastes or incompatible wastes and materials will be placed in a waste pile, an explanation of how section 33-24-05-134 will be complied with.

(8) A description of how hazardous waste residues and contaminated materials will be removed from the waste pile at the closure, as required under subsection 1 of section 33-24-05-135. For any wastes not to be removed from the waste pile upon closure, the owner or operator must submit detailed plans and an engineering report describing how subsections 1 and 2 of section 33-24-05-180 will be complied with. This information should be included in the closure plan and where applicable, the postclosure plan, submitted under subdivision m of subsection 2 of this section.

(9) A waste management plan for hazardous wastes F020, F021, F022, F023, F026, and F027 describing how a waste pile that is not enclosed (as defined in subsection 3 of section 33-24-05-130) is or will be designed, constructed, operated, and maintained to meet the requirements of section 33-24-05-136. This submission must address the following items as specified in section 33-24-05-136:

(a) The volume, physical, and chemical characteristics of the wastes to be disposed in the waste pile, including their potential to migrate through soil or to volatilize or escape into the atmosphere.

(b) The attenuative properties of underlying and surrounding soils or other materials.

(c) The mobilizing properties of other materials codisposed with these wastes.

(d) The effectiveness of additional treatment, design, or monitoring techniques.

w. For facilities that incinerate hazardous waste, except as section 33-24-05-144 provides otherwise, the applicant must fulfill the requirements of paragraph 1, 2, or 3.

(1) When seeking an exemption in accordance with subsection 2 of section 33-24-05-144, submit a demonstration that the waste to be burned:

(a) Is hazardous (either listed in or fails the characteristic tests in chapter 33-24-02) solely because it is:

[1] Ignitable, or corrosive, or both; or

[2] Reactive for characteristics other than those in subdivisions d and e of subsection 1 of section 33-24-02-13, and will not be burned when other hazardous wastes are present in the combustion zone; and

(b) Contains insignificant concentrations of the hazardous constituents listed in appendix V of chapter 33-24-02.

(2) Submit a trial burn plan or the results of a trial burn including all required determinations in accordance with subsection 2 of section 33-24-06-19.

(3) In lieu of a trial burn, the applicant may submit the following information:

(a) An analysis of each waste or mixture of wastes to be burned including:

[1] Heat value of the waste in the form and composition in which it will be burned.

[2] Viscosity (if applicable), or description of physical form of the waste.

[3] An identification of any hazardous organic constituents listed in chapter 33-24-02, appendix V of this article which are present in the waste to be burned, except that

the applicant need not analyze for constituents listed in chapter 33-24-02, appendix V, of this article which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified and the basis for their exclusion stated. The waste analysis must rely on analytical techniques specified in ~~"Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see section 33-24-01-05), or their equivalent~~ "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05.

[4] An approximate quantification of the hazardous ~~constituent~~ constituents identified in the waste, within the precision ~~specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see section 33-24-01-05).~~ produced by the analytical methods specified in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", environmental protection agency publication SW-846, as incorporated by reference in section 33-24-01-05.

[5] A quantification of those hazardous constituents in the waste which may be designated as principle organic hazardous constituents based on data submitted from the other trial or operational burns which demonstrate compliance with the performance standard in section 33-24-05-147.

(b) A detailed engineering description of the incinerator, including:

[1] Manufacturer's name and model number of incinerator.

[2] Type of incinerator.

[3] Linear dimension of incinerator unit including cross-sectional area of combustion chamber.

[4] Description of auxiliary fuel system (type/feed).

[5] Capacity of prime mover.

[6] Description of automatic waste feed cutoff systems.

[7] Stack gas monitoring and pollution control monitoring system.

[8] Nozzle and burner design.

[9] Construction materials.

[10] Location and description and temperature, pressure, and flow indicating devices and control devices.

(c) A description and analysis of the waste to be burned compared with the waste for which data from operational or trial burns

are provided to support the contention that a trial burn is not needed. The data should include those items listed in subparagraph a of paragraph 3 of subdivision w. This analysis should specify the principle organic hazardous constituents which the applicant has identified in the waste for which a permit is sought and any differences from the principle organic hazardous constituents in the waste for which burn data are provided.

(d) The design and operating conditions of the incinerator unit to be used, compared with that for which comparable burn data are available.

(e) A description of the results submitted from any previously conducted trial burns including:

[1] Sampling and analysis techniques used to calculate performance standards in section 33-24-05-147.

[2] Methods and results of monitoring temperatures, waste feed rates, carbon monoxide, and an appropriate indicator of combustion gas velocity (including a statement concerning the precision and accuracy of this measurement).

[3] The certification and results required by paragraph 7 of subdivision b of subsection 2 of section 33-24-06-19.

(f) The expected incinerator operation information to demonstrate compliance with sections 33-24-05-147 and 33-24-05-149 including:

[1] Expected carbon monoxides level in the stack exhaust gas.

[2] Waste feed rate.

[3] Combustion zone temperature.

[4] Indication of combustion gas velocity.

[5] Expected stack gas volume, flow rate, and temperature.

[6] Computed residence time for waste in the combustion zone.

[7] Expected hydrochloric acid removal efficiency.

[8] Expected fugitive emissions and their control procedures.

[9] Proposed waste feed cutoff limits based on the identified significant operating parameters.

(g) Such supplemental information as the department finds necessary to achieve the purposes of this subdivision.

(h) Waste analysis data, including that submitted in subparagraph a of paragraph 3 of subdivision w, sufficient to allow the department to specify as permit principle organic hazardous

constituents those constituents for which destruction and removal efficiencies will be required.

(4) The department shall approve a permit application without a trial burn if it finds that:

(a) The wastes are sufficiently similar; and

(b) The incinerator units are sufficiently similar, and the data from other trial burns are adequate to specify (under section 33-24-05-149) operating conditions that will ensure that the performance standards in section 33-24-05-147 will be met.

x. For facilities that use land treatment to dispose of hazardous waste, except as otherwise provided in section 33-24-05-01:

(1) A description of plans to conduct a treatment demonstration as required under section 33-24-05-162. The description must include the following information:

(a) The wastes for which the demonstration will be made and the potential hazardous constituents in the waste.

(b) The data sources to be used to make the demonstration, ~~e.g.,~~ for example, literature, laboratory data, field data, or operating data.

(c) Any specific laboratory or field test that will be conducted, including:

[1] The type of test, ~~e.g.,~~ for example, column leaching, degradation.

[2] Materials and methods, including analytical procedures.

[3] Expected time for completion.

[4] Characteristics of the unit that will be simulated in the demonstration, including treatment zone characteristics, climatic conditions, and operating practices.

(2) A description of a land treatment program as required under section 33-24-05-161. This information must be submitted with the plans for the treatment demonstration and updated following the treatment demonstration. The land treatment program must address the following items:

(a) The wastes to be land treated.

(b) Design measures and operating practices necessary to maximize treatment in accordance with subsection 1 of section 33-24-05-163, including:

[1] Waste application method and rate.

[2] Measures to control soil pH.

[3] Enhancement of microbial or chemical reactions.

[4] Control of moisture content.

(c) Provisions for unsaturated zone monitoring, including:

[1] Sampling equipment, procedures, and frequency.

[2] Procedures for selecting sampling locations.

[3] Analytical procedures.

[4] Chain of custody control.

[5] Procedures for establishing background values.

[6] Statistical methods for interpreting results.

[7] Justification for any hazardous constituents recommended for selection as principle hazardous constituents in accordance with the criteria for such selection in subsection 1 of section 33-24-05-165.

(d) A list of hazardous constituents reasonably expected to be in, or derived from, the waste to be land treated based on waste analysis performed pursuant to section 33-24-05-04.

(e) The proposed dimensions of the treatment zone.

(3) A description of how the unit is, or will be designed, constructed, operated and maintained in order to meet the requirements of section 33-24-05-163. This submission must address the following items:

(a) Control of run-on.

(b) Collection and control of runoff.

(c) Minimization of runoff of hazardous constituents from the treatment zone.

(d) Management of collection and holding facilities associated with run-on and runoff control systems.

(e) Periodic inspection of the unit. This information should be included in the inspection plan submitted under subdivision e.

(f) Control of wind dispersal of particulate matter, if applicable.

(4) If food chain crops are to be grown in or on the treatment zone of the land treatment unit, a description of how the demonstration required under subsection 1 of section 33-24-05-164 will be conducted including:

(a) Characteristics of the food chain crop for which the demonstration will be made.

(b) Characteristics of the waste treatment zone and waste application method and rate to be used in the demonstration.

(c) Procedures for crop growth, sample collection, sample analysis, and data evaluation.

(d) Characteristics of the comparison crop, including the location and conditions under which it was or will be grown.

(5) If food chain crops are to be grown and cadmium is present in the land treated waste, a description of how the requirements of subsection 5 of section 33-24-05-164 will be complied with.

(6) A description of the vegetative cover to be applied to closed portions of the facility and a plan for maintaining such cover during the postclosure care period as required under subdivision h of subsection 1 and subdivision b of subsection 3 of section 33-24-05-167. This information should be included in the closure plan and where applicable, the postclosure care plan submitted under subdivision m.

(7) If ignitable or reactive wastes will be placed in or on the treatment zone, an explanation of how the requirements of section 33-24-05-168 will be complied with.

(8) If incompatible wastes or incompatible wastes or materials will be placed in or on the same treatment zone, an explanation of how section 33-24-05-169 will be complied with.

(9) A waste management plan for hazardous wastes F020, F021, F022, F023, F026, and F027 describing how a land treatment facility is or will be designed, constructed, operated, and maintained to meet the requirements of section 33-24-05-170. This submission must address the following items as specified in section 33-24-05-170:

(a) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere.

(b) The attenuative properties of underlying and surrounding soils or other materials.

(c) The mobilizing properties of other materials codisposed with these wastes.

(d) The effectiveness of additional treatment, design, or monitoring techniques.

y. For facilities that dispose of hazardous waste in landfills, except as otherwise provided in section 33-24-05-01:

(1) A list of the hazardous wastes placed or to be placed in each landfill or landfill cell.

(2) Detailed plans and an engineering report describing how the landfill is or will be designed, constructed, operated, and maintained to comply with the requirements of sections 33-24-05-10, 33-24-05-177, 33-24-05-178, and 33-24-05-187. This submission must address the following items as specified in that section:

(a) The liner system.

[1] The liner system (except for an existing portion of a landfill), if the landfill must meet the requirements of subsection 1 of section 33-24-05-177. If an exemption from the requirement for a liner is sought as provided

by subsection 2 of section 33-24-05-177, submit detailed plans, and engineering and hydrogeological reports, as appropriate, describing alternate designs and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the ground water or surface water at any future time;

[2] The double liner and leak (leachate) detection, collection, and removal system, if the landfill must meet the requirements of subsection 3 of section 33-24-05-177. If an exemption from the requirements for double liners and a leak detection, collection, and removal system or alternative design is sought as provided by subsections 4, 5, or 6 of section 33-24-05-177, submit appropriate information;

[3] If the leak detection system is located in a saturated zone, submit detailed plans and an engineering report explaining the leak detection system design and operation, and the location of the saturated zone in relation to the leak detection system;

[4] The construction quality assurance (CQA) plan if required under section 33-24-05-10;

[5] Proposed action leakage rate, with rationale, if required under section 33-24-05-187, and response action plan, if required under section 33-24-05-178;

(b) Control of run-on.

(c) Control of runoff.

(d) Management of collection and holding facilities associated with run-on and runoff control systems.

(e) Control of wind dispersal of particulate matter where applicable.

(3) A description of how each landfill, including the double liner system, leachate collection and removal system, leak detection system, cover system, and appurtenances for control of run-on and runoff, will be inspected in order to meet the requirements of subsections 1, 2, and 3 of section 33-24-05-178. This information must be included in the inspection plan submitted under subdivision e of subsection 2.

(4) A description of how each landfill, including the liner and cover systems will be inspected in order to meet the requirements of subsections 1 and 2 of section 33-24-05-178. This information should be included in the inspection plan submitted under subdivision e.

(5) Detailed plans and an engineering report describing the final cover which will be applied to each landfill or landfill cell at closure in accordance with subsection 1 of section 33-24-05-180 and a description of how each landfill will be maintained and monitored after closure in accordance with subsection 2 of that section. This

information should be included in the closure and postclosure plans submitted under subdivision m.

(6) If ignitable or reactive wastes will be landfilled, an explanation of how the requirements of section 33-24-05-181 will be complied with.

(7) If incompatible wastes or incompatible wastes and materials will be landfilled an explanation of how section 33-24-182 will be complied with.

(8) If containers of hazardous waste are to be landfilled an explanation of how the requirements of section 33-24-05-184 or 33-24-05-185, as applicable, will be complied with.

(9) A waste management plan for hazardous wastes F020, F021, F022, F023, F026, and F027 describing how a landfill is or will be designed, constructed, operated, and maintained to meet the requirements of section 33-24-05-186. This submission must address the following items as specified in section 33-24-05-186:

(a) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere.

(b) The attenuative properties of underlying and surrounding soils or other materials.

(c) The mobilizing properties of other materials codisposed with these wastes.

(d) The effectiveness of additional treatment, design, or monitoring techniques.

z. ~~A summary of the ground water monitoring data obtained during the federal interim status period under 40 CFR part 265.90 through 265.94, where applicable, or during the period of operating status prior to final administrative approval of the permit application under section 33-24-06-16.~~

~~aa. Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including ground water flow direction and rate, and the basis for such identification, i.e., the information obtained from hydrogeologic investigations of the facility area.~~

~~bb. On the topographic map required under subdivision q a delineation of the waste management area, the property boundary, the proposed "point of compliance" as defined under section 33-24-05-52, the proposed location of ground water monitoring wells as required under section 33-24-05-54 and, to the extent possible, the information required in subdivision aa.~~

~~cc. A description of any plume of contamination that has entered the ground water from a regulated unit at the time the application is submitted that:~~

~~(1) Delineates the extent of the plume on the topographic map required under subdivision q.~~

(2) Identifies the concentration of each appendix XII, of chapter 33-24-05, constituent throughout the plume or identifies the maximum concentrations of each appendix XII, of chapter 33-24-05, constituent in the plume.

dd. Detailed plans and an engineering report describing the proposed ground water monitoring program to be implemented to meet the requirements of section 33-24-05-54.

ee. If the presence of hazardous constituents has not been detected in the ground water at the time of permit application the owner or operator must submit sufficient information, supporting data, and analyses to establish a detection monitoring program which meets the requirements of section 33-24-05-55. This submission must address the following items as specified under that section:

(1) A proposed list of indicator parameters, waste constituents or reaction products that can provide a reliable indication of hazardous constituents in the ground water.

(2) A proposed ground water monitoring system.

(3) Background values for each proposed monitoring parameter or constituent or procedures to calculate such values.

(4) A description of proposed sampling analysis and statistical comparison procedures to be utilized in evaluating ground water monitoring data.

ff. If the presence of hazardous constituents has been detected in the ground water at the point of compliance at the time of the permit application, the owner or operator shall submit sufficient information, supporting data, and analysis to establish a compliance monitoring program which meets the requirements of section 33-24-05-56. Except as provided in subdivision e of subsection 8 of section 33-24-05-55, the owner or operator shall also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of section 33-24-05-57, unless the owner or operator obtains written authorization in advance from the department to submit a proposed permit schedule for submittal of such a plan. To demonstrate compliance with section 33-24-05-56, the owner or operator shall address the following items:

(1) A description of the wastes previously handled at the facility.

(2) A characterization of the contaminated ground water, including concentrations of hazardous constituents.

(3) A list of hazardous constituents for which compliance monitoring will be undertaken in accordance with sections 33-24-05-54 and 33-24-05-56.

(4) Proposed concentration limits for each hazardous constituent based on the criteria set forth in subsection 1 of section 33-24-05-51, including a justification for establishing any alternate concentration limits.

(5) Detailed plans and an engineering report describing the proposed ground water monitoring system in accordance with the requirements of section 33-24-05-54.

~~(6) A description of proposed sampling analysis and statistical comparison procedures to be utilized in evaluating ground water monitoring data.~~

~~gg. If hazardous constituents have been measured in the ground water which exceed the concentration limits established under Table 1 of section 33-24-05-51, or if ground water monitoring conducted at the time of permit application under sections 33-24-05-47 through 33-24-05-51 at the waste boundary indicates the presence of hazardous constituents from the facility in ground water over background concentrations, the owner or operator shall submit sufficient information, supporting data, and analyses to establish a corrective action program which meets the requirements of section 33-24-05-57. However, an owner or operator is not required to submit information to establish a corrective action program if he demonstrates to the department that alternate concentration limits will protect human health and the environment after considering the criteria listed in subsection 2 of section 33-24-05-51. An owner or operator who is not required to establish a corrective action program for this reason shall instead submit sufficient information to establish a compliance monitoring program which meets the requirements of section 33-24-05-56 and subdivision ee of subsection 2 of this section. To demonstrate compliance with section 33-24-05-57 the owner or operator shall address, at a minimum, the following items:~~

~~(1) A characterization of the contaminated ground water, including concentrations of hazardous constituents.~~

~~(2) The concentration limit for each hazardous constituent found in the ground water as set forth in section 33-24-05-51.~~

~~(3) Detailed plans and an engineering report describing the corrective action to be taken.~~

~~(4) A description of how the ground water monitoring program will assess the adequacy of the corrective action.~~

~~(5) The permit may contain a schedule for submittal of the information required in paragraphs 3 and 4 provided the owner or operator obtains written authorization from the department prior to submittal of the complete permit application.~~ [Reserved]

~~hh~~ aa. For land disposal facilities, if a case-by-case extension has been approved under section 33-24-05-254 or a petition has been approved under section 33-24-05-255, a copy of the notice of approval for the extension or petition is required.

~~ii~~ bb. Except as otherwise provided in section 33-24-05-300, owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units must provide the following additional information:

(1) A detailed description of the unit being used or proposed for use, including the following:

(a) Physical characteristics, materials of construction, and dimensions of the unit;

(b) Detailed plans and engineering reports describing how the unit will be located, designed, constructed, operated, maintained,

monitored, inspected, and closed to comply with the requirements of sections 33-24-05-301 and 33-24-05-302; and

(c) For disposal units, a detailed description of the plans to comply with the postclosure requirements of section 33-24-05-303.

(2) Detailed hydrologic, geologic, and meteorologic assessments and land use maps for the region surrounding the site that address and ensure compliance of the unit with each factor in the environmental performance standards of section 33-24-05-301. If the applicant can demonstrate that the applicant does not violate the environmental performance standards of section 33-24-05-301 and the department agrees with such demonstration, preliminary hydrologic, geologic, and meteorologic assessments will suffice.

(3) Information on the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and on the potential magnitude and nature of such exposures.

(4) For any treatment unit, a report on a demonstration of the effectiveness of the treatment based on laboratory or field data.

(5) Any additional information determined by the department to be necessary for evaluation of compliance of the unit with the environmental performance standards of section 33-24-05-301.

~~jj~~ cc. Except as otherwise provided in section 33-24-05-01, owners and operators of facilities that have process vents to which sections 33-24-05-400 through 33-24-05-419 applies must provide the following additional information:

(1) For facilities that cannot install a closed-vent system and control device to comply with the provisions of sections 33-24-05-400 through 33-24-05-419 on the effective date that the facility becomes subject to the provisions of these sections, an implementation schedule as specified in subdivision b of subsection 1 of section 33-24-05-403.

(2) Documentation of compliance with the process vent standards in section 33-24-05-402, including:

(a) Information and data identifying all affected process vents, annual throughput and operating hours of each affected unit, estimated emission rates for each affected vent and for the overall facility ~~(i.e.,~~ for example, the total emissions for all affected vents at the facility), and the approximate location within the facility of each affected unit, ~~e.g.,~~ for example, identify the hazardous waste management units on a facility plot plan.

(b) Information and data supporting estimates of vent emissions and emission reduction achieved by add-on control devices based on engineering calculations or source tests. For the purpose of determining compliance, estimates of vent emissions and emission reductions must be made using operating parameter values, ~~e.g.,~~ for example, temperatures, flow rates, or concentrations) that represent the conditions that exist when the waste management unit is operating at the highest load or capacity level reasonably expected to occur.

(c) Information and data used to determine whether or not a process vent in subject to the requirements of section 33-24-05-402.

(3) Where an owner or operator applies for permission to use a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system to comply with the requirements of section 33-24-05-402, and chooses to use the test data to determine the organic removal efficiency or the total organic compound concentration achieved by the control device, a performance test plan as specified in subdivision c of subsection 2 of section 33-24-05-405.

(4) Documentation of compliance with section 33-24-05-403 including:

(a) A list of all information references and sources used in preparing the documentation.

(b) Records, including the dates, of each compliance test required by subsection 11 of section 33-24-05-403.

(c) A design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of "APTI course 415: control of gaseous emissions" (incorporated by reference as specified in section 33-24-01-05) or other engineering texts acceptable to the department that present basic control device design information. The design analysis shall address the vent stream characteristics and control device operation parameters as specified in paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405.

(d) A statement signed and dated by the owner or operator certifying the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur.

(e) A statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of ninety-five weight percent or greater unless the total organic emission limits of subsection 1 of section 33-24-05-402 for affected access vents at the facility can be attained by a control device involving vapor recovery at an efficiency level less than ninety-five weight percent.

~~kk~~ dd. Except as otherwise provided in section 33-24-05-01, owners and operators of facilities that have equipment to which sections 33-24-05-420 through 33-24-05-449 applies must provide the following additional information:

(1) For each piece of equipment to which sections 33-24-05-420 through 33-24-05-449 applies:

(a) Equipment identification number and hazardous waste management unit identification.

(b) Approximate locations within the facility, ~~e.g.,~~ for example, identify the hazardous waste management unit on a facility plot plan.

(c) Type of equipment, ~~e.g.,~~ for example, a pump or pipeline valve.

(d) Percent by weight total organics in the hazardous waste stream at the equipment.

(e) Hazardous waste state at the equipment, ~~e.g.,~~ for example, gas or vapor or liquid.

(f) Method of compliance with the standard, ~~e.g.,~~ for example, "monthly leak detection and repairs" or "equipped with dual mechanical seals".

(2) For facilities that do not install a closed-vent system and control device to comply with the provisions of sections 33-24-05-420 through 33-24-05-449 on the effective date that the facility becomes subject to the provisions of these sections, an implementation schedule as specified in subdivision b of subsection 1 of section 33-24-05-403.

(3) Where an owner or operator applies for permission to use a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, and chooses to use test data to determine the organic removal efficiency or the total organic compound concentration achieved by the control device, a performance test plan as specified in subdivision c of subsection 2 of section 33-24-05-405.

(4) Documentation that demonstrates compliance with the equipment standards in sections 33-24-05-422 to 33-24-05-429. This documentation must contain the records required under section 33-24-05-434. The department may request further documentation before deciding if compliance has been demonstrated.

(5) Documentation to demonstrate compliance with section 33-24-05-430 must include the following information:

(a) A list of all information references and sources used in preparing the documentation.

(b) Records, including the dates, of each compliance test required by subsection 10 of section 33-24-05-403.

(c) A design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on appropriate sections of "ATPI course 415: control of gaseous emissions" (incorporated by reference as specified in section 33-24-01-05) or other engineering texts acceptable to the department that present basic control device design information. The design analysis should address the vent stream characteristics and control device operation parameters as specified in paragraph 3 of subdivision d of subsection 2 of section 33-24-05-405.

(d) A statement signed and dated by the owner or operator certifying that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur.

(e) A statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of ninety-five weight percent or greater.

~~ll~~ ee. Except as otherwise provided by section 33-24-05-01, owners and operators of hazardous waste treatment, storage, or disposal facilities that collect, store, or treat hazardous waste on drip pads must provide the following additional information:

(1) A list of hazardous wastes placed or to be placed on each drip pad.

(2) If an exemption is sought to sections 33-24-05-47 through 33-24-05-58, detailed plans and an engineering report describing how the requirements of section 33-24-05-47 will be met.

(3) Detailed plans and an engineering report describing how the drip pad is or will be designed, constructed, operated, and maintained to meet the requirements of section 33-24-05-504, including the as-built drawings and specifications. This submission must address the following items as specified in section 33-24-05-502:

(a) The design characteristics of the drip pad;

(b) The liner system;

(c) The leakage detection system, including the leak detection system and how it is designed to detect the failure of the drip pad or the presence of any releases of hazardous waste or accumulated liquid at the earliest practicable time;

(d) Practices designed to maintain drip pads;

(e) The associated collection system;

(f) Control of run-on to the drip pad;

(g) Control of runoff from the drip pad;

(h) The interval at which drippage and other materials will be removed from the associated collection system and a statement demonstrating that the interval will be sufficient to prevent overflow onto the drip pad;

(i) Procedures for cleaning the drip pad at least once every seven days to ensure the removal of any accumulated residues of waste or other materials, including but not limited to rinsing, washing with detergents or other appropriate solvents, or steam cleaning and provisions for documenting the date, time, and cleaning procedure used each time the pad is cleaned.

(j) Operating practices and procedures that will be followed to ensure that tracking of hazardous waste or waste constituents

off the drip pad due to activities by personnel or equipment is minimized;

(k) Procedures for ensuring that, after removal from the treatment vessel, treated wood from pressure and nonpressure processes is held on the drip pad until drippage has ceased, including recordkeeping practices;

(l) Provisions for ensuring that collection and holding units associated with the run-on and runoff control systems are emptied or otherwise managed as soon as possible after storms to maintain design capacity of the system;

(m) If treatment is carried out on the drip pad, details of the process equipment used, and the nature and quality of the residuals.

(n) A description of how each drip pad, including appurtenances for control of run-on and runoff, will be inspected in order to meet the requirements of section 33-24-05-504. This information should be included in the inspection plan submitted under subdivision e of subsection 2 of section 33-24-06-17.

(o) A certification signed by an independent, qualified, registered professional engineer, stating that the drip pad design meets the requirements of subsections 1 through 6 of section 33-24-05-504.

(p) A description of how hazardous waste residues and contaminated materials will be removed from the drip pad at closure, as required under subsection 1 of section 33-24-05-506. For any waste not to be removed from the drip pad upon closure, the owner or operator must submit detailed plans and an engineering report describing how section 33-24-05-180 will be complied with. This information should be included in the closure plan and, where applicable, the post closure plan submitted under subdivision m of subsection 2 of section 33-24-06-17.

ff. Except as otherwise provided by section 33-24-05-01, owners and operators of hazardous waste treatment, storage, or disposal facilities that collect, store, or treat hazardous waste in boilers or industrial furnaces must provide the following additional information:

(1) Trial burns.

(a) General. Except as provided below, owners and operators that are subject to the standards to control organic emissions provided by section 33-24-05-529, standards to control particulate matter provided by section 33-24-05-530, standards to control metals emissions provided by section 33-24-05-531, or standards to control hydrogen chloride or chlorine gas emissions provided by section 33-24-05-532 must conduct a trial burn to demonstrate conformance with those standards and must submit a trial burn plan or the results of a trial burn, including all required determinations, in accordance with subsection 4 of section 33-24-06-19.

[1] A trial burn to demonstrate conformance with a particular emission standard may be waived under provisions of sections 33-24-05-529 through 33-24-05-532 and subdivisions b through e of subsection 1; and

[2] The owner or operator may submit data in lieu of a trial burn, as prescribed in subdivision f of subsection 1.

(b) Waiver of trial burn for destruction and removal efficiency.

[1] Boilers operated under special operating requirements. When seeking to be permitted under subdivision d of subsection 1 of section 33-24-05-529 and section 33-24-05-535 that automatically waive the destruction and removal efficiency trial burn, the owner or operator of a boiler must submit documentation that the boiler operates under the special operating requirements provided by section 33-24-05-535 .

[2] Boilers and industrial furnaces burning low risk waste. When seeking to be permitted under the provisions for low risk waste provided by subdivision e of subsection 1 of section 33-24-05-529 and subsection 1 of section 33-24-05-534 that waive the destruction and removal efficiency trial burn, the owner or operator must submit:

[a] Documentation that the device is operated in conformance with the requirements of subdivision a of subsection 1 of section 33-24-05-534 .

[b] Results of analyses of each waste to be burned, documenting the concentrations of nonmetal compounds listed in appendix V of chapter 33-24-02, except for those constituents that would reasonably not be expected to be in the waste. The constituents excluded from analysis must be identified and the basis for their exclusion explained. The analysis must rely on analytical techniques specified in "Test Methods for the Evaluating Solid Waste, Physical/Chemical Methods" SW-846, as incorporated by reference in section 33-24-01-05.

[c] Documentation of hazardous waste firing rates and calculations of reasonable, worst-case emission rates of each constituent identified in subparagraph b of paragraph 2 of subdivision b of subsection 1 using procedures provided by paragraph 2 of subdivision b of subsection 1 of section 33-24-05-534 .

[d] Results of emissions dispersion modeling for emissions identified in subparagraph c of paragraph 2 of subdivision b of subsection 1 using modeling procedures prescribed by subsection 8 of section 33-24-05-531 . The department will review the emission modeling conducted by the applicant to determine conformance with these procedures. The department will either approve the modeling or

determine that alternate or supplementary modeling is appropriate.

[e] Documentation that the maximum annual average ground level concentration of each constituent identified in subparagraph b of paragraph 2 of subdivision b of subsection 1 quantified in conformance with subparagraph d of paragraph 2 of subdivision b of subsection 1 does not exceed the allowable ambient level established in appendices XIX or XX of chapter 33-24-05. The acceptable ambient concentration for emitted constituents for which a specific reference air concentration has not been established in appendix XIX of chapter 33-24-05 or risk-specific dose has not been established in appendix XX of chapter 33-24-05 is 0.1 micrograms per cubic meter, as noted in the footnote to appendix XIX of chapter 33-24-05.

(c) Waiver of trial burn for metals. When seeking to be permitted under the tier I (or adjusted tier I) metals feed rate screening limits provided by subsections 2 and 5 of section 33-24-05-531 that control metals emissions without requiring a trial burn, the owner or operator must submit:

[1] Documentation of the feed rate of hazardous waste, other fuels, and industrial furnace feedstocks;

[2] Documentation of the concentration of each metal controlled by subsection 2 or 5 of section 33-24-05-531 in the hazardous waste, other fuels, and industrial furnace feedstocks, and calculations of the total feed rate of each metal;

[3] Documentation of how the applicant will ensure that the tier I feed rate screening limits provided by subsection 2 or 5 of section 33-24-05-531 will not be exceeded during the averaging period provided by that paragraph;

[4] Documentation to support the determination of the terrain-adjusted effective stack height, good engineering practice stack height, terrain type, and land use as provided by subdivisions c through e of subsection 2 of section 33-24-05-531;

[5] Documentation of compliance with the provisions of subdivision f of subsection 2 of section 33-24-05-531, if applicable, for facilities with multiple stacks;

[6] Documentation that the facility does not fail the criteria provided by subdivision g of subsection 2 of section 33-24-05-531 for eligibility to comply with the screening limits; and

[7] Proposed sampling and metals analysis plan for the hazardous waste, other fuels, and industrial furnace feed stocks.

(d) Waiver of trial burn for particulate matter. When seeking to be permitted under the low risk waste provisions of subsection 2 of section 33-24-05-534 which waives the particulate standard (and trial burn to demonstrate conformance with the particulate standard), applicants must submit documentation supporting

conformance with paragraph 2 of subdivision b of subsection 1 and subdivision c of subsection 1.

(e) Waiver of trial burn for hydrogen chloride and chlorine. When seeking to be permitted under the tier I (or adjusted tier I) feed rate screening limits for total chloride and chlorine provided by subdivision a of subsection 2 and subsection 5 of section 33-24-05-532 that control emissions of hydrogen chloride and chlorine gas without requiring a trial burn, the owner or operator must submit:

[1] Documentation of the feed rate of hazardous waste, other fuels, and industrial furnace feedstocks;

[2] Documentation of the levels of total chloride and chlorine in the hazardous waste, other fuels, and industrial furnace feedstocks, and calculations of the total feed rate of total chloride and chlorine;

[3] Documentation of how the applicant will ensure that the tier I (or adjusted tier I) feed rate screening limits provided by subdivision a of subsection 2 or subsection 5 of section 33-24-05-532 will not be exceeded during the averaging period provided by that paragraph;

[4] Documentation to support the determination of the terrain-adjusted effective stack height, good engineering practice stack height, terrain type, and land use as provided by subdivision c of subsection 2 of section 33-24-05-532;

[5] Documentation of compliance with the provisions of subdivision d of subsection 2 of section 33-24-05-532, if applicable, for facilities with multiple stacks;

[6] Documentation that the facility does not fail the criteria provided by subdivision c of subsection 2 of section 33-24-05-532 for eligibility to comply with the screening limits; and

[7] Proposed sampling and analysis plan for total chloride and chlorine for the hazardous waste, other fuels, and industrial furnace feedstocks.

(f) Data in lieu of trial burn. The owner or operator may seek an exemption from the trial burn requirements to demonstrate conformance with sections 33-24-05-529 through 33-24-05-532 and subsection 4 of section 33-24-06-19 by providing the information required by subsection 4 of section 33-24-06-19 from previous compliance testing of the device in conformance with section 33-24-05-528, or from compliance testing or trial or operational burns of similar boilers or industrial furnaces burning similar hazardous wastes under similar conditions. If data from a similar device is used to support a trial burn waiver, the design and operating information required by subsection 4 of section 33-24-06-19 must be provided for both the similar device and the device to which the data is to be applied, and a comparison of the design and operating information must be provided. The department shall approve a permit application without a trial burn if the department finds that the hazardous wastes are sufficiently similar, the devices are sufficiently similar, the operating conditions are sufficiently similar, and the data from other compliance tests, trial burns, or operational burns are adequate to specify (under section 33-24-05-

527) operating conditions that will ensure conformance with subsection 3 of section 33-24-05-527. In addition, the following information shall be submitted:

[1] For a waiver from any trial burn:

[a] A description and analysis of the hazardous waste to be burned compared with the hazardous waste for which data from compliance testing, or operational or trial burns are provided to support the contention that a trial burn is not needed;

[b] The design and operating conditions of the boiler or industrial furnace to be used, compared with that for which comparative burn data are available; and

[c] Such supplemental information as the department finds necessary to achieve the purposes of this item.

[2] For a waiver of the destruction and removal efficiency trial burn, the basis for selection of principle organic hazardous constituents used in the other trial or operational burns which demonstrate compliance with the destruction and removal efficiency performance standard in subsection 1 of section 33-24-05-529 . This analysis should specify the constituents in appendix V of chapter 33-24-02, that the applicant has identified in the hazardous waste for which a permit is sought, and any differences from the principle organic hazardous constituents in the hazardous waste for which burn data are provided.

(2) Alternative hydrocarbon limit for industrial furnaces with organic matter in raw materials. Owners and operators of industrial furnaces requesting an alternative hydrocarbon limit under subsection 6 of section 33-24-05-529 shall submit the following information at a minimum:

(a) Documentation that the furnace is designed and operated to minimize hydrocarbon emissions from fuels and raw materials;

(b) Documentation of the proposed baseline flue gas hydrocarbon (and carbon monoxide) concentration, including data on hydrocarbon (and carbon monoxide) levels during tests when the facility produced normal products under normal operating conditions from normal raw materials while burning normal fuels and when not burning hazardous waste;

(c) Test burn protocol to confirm the baseline hydrocarbon (and carbon monoxide) level including information on the type and flow rate of all feedstreams, point of introduction of all feedstreams, total organic carbon content (or other appropriate measure of organic content) of all nonfuel feedstreams, and operating conditions that affect combustion of fuels and destruction of hydrocarbon emissions from nonfuel sources;

(d) Trial burn plan to:

[1] Demonstrate that flue gas hydrocarbon (and carbon monoxide) concentrations when burning hazardous waste do

not exceed the baseline hydrocarbon (and carbon monoxide) level; and

[2] Identify the types and concentrations of organic compounds listed in appendix V of chapter 33-24-02, that are emitted when burning hazardous waste in conformance with procedures prescribed by the department;

(e) Implementation plan to monitor over time changes in the operation of the facility that could reduce the baseline hydrocarbon level and procedures to periodically confirm the baseline hydrocarbon level; and

(f) Such other information as the department finds necessary to achieve the purposes of this paragraph.

(3) Alternative metals implementation approach. When seeking to be permitted under an alternative metals implementation approach under subsection 6 of section 33-24-05-531, the owner or operator must submit documentation specifying how the approach ensures compliance with the metals emissions standards of subsection 3 or 4 of section 33-24-05-531 and how the approach can be effectively implemented and monitored. Further, the owner or operator shall provide such other information that the department finds necessary to achieve the purposes of this paragraph.

(4) Automatic waste feed cutoff system. Owners and operators shall submit information describing the automatic waste feed cutoff system, including any prealarm systems that may be used.

(5) Direct transfer. Owners and operators that use direct transfer operations to feed hazardous waste from transport vehicles (containers, as defined in section 33-24-05-536) directly to the boiler or industrial furnace shall submit information supporting conformance with the standards for direct transfer provided by section 33-24-05-536 .

(6) Residues. Owners and operators that claim that their residues are excluded from regulation under the provisions of section 33-24-05-537 must submit information adequate to demonstrate conformance with those provisions.

gg. A summary of the preapplication meeting, along with a list of attendees and their addresses, and copies of any written comments or materials submitted at the meeting, as required under subsection 3 of section 33-24-07-25.

hh. Except as otherwise provided in section 33-24-05-01, owners and operators of tanks, surface impoundments, or containers that use air emission controls in accordance with the requirements of sections 33-24-05-450 through 33-24-05-474 must provide the following additional information:

(1) Documentation for each floating roof cover installed on a tank subject to subdivision a or b of subsection 4 of section 33-24-05-454 that includes information prepared by the owner or operator or provided by the cover manufacturer or vendor describing the cover design, and certification by the owner or operator that the cover meets the applicable design specifications as listed in subdivision a of subsection 5 or subdivision a of subsection 6 of section 33-24-05-454.

(2) Identification of each container area subject to the requirements of sections 33-24-05-450 through 33-24-05-474 and certification by the owner or operator that the requirements of chapter 33-24-06 are met.

(3) Documentation for each enclosure used to control air pollutant emissions from tanks or containers in accordance with the requirements of subdivision e of subsection 4 of section 33-24-05-454 or paragraph 2 of subdivision a of subsection 5 of section 33-24-05-456 that includes records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in "Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B.

(4) Documentation for each floating membrane cover installed on a surface impoundment in accordance with the requirements of subsection 3 of section 33-24-05-455 that includes information prepared by the owner or operator or provided by the cover manufacturer or vendor describing the cover design, and certification by the owner or operator that the cover meets the specifications listed in subdivision a of subsection 3 of section 33-24-05-455.

(5) Documentation for each closed-vent system and control device installed in accordance with the requirements of section 33-24-05-457 that includes design and performance information as specified in paragraphs 3 and 4 of subdivision cc.

(6) An emission monitoring plan for both method 21 in 40 CFR part 60, appendix A and control device monitoring methods. This plan shall include the following information: monitoring point or points, monitoring methods for control devices, monitoring frequency, procedures for documenting exceedances, and procedures for mitigating noncompliances.

(7) When an owner or operator of a facility subject to subsection 5 of section 33-24-06-16 cannot comply with the requirements of sections 33-24-05-450 through 33-24-05-474 by the date of permit issuance, the schedule of implementation required under subsection 5 of section 33-24-06-16 must be provided.

3. **Additional information requirements**. The following additional information regarding protection of ground water is required from owners or operators of hazardous waste facilities containing a regulated unit except as provided in subsection 2 of section 33-24-05-47.

a. A summary of the ground water monitoring data obtained during the interim status period under section 33-24-06-16, where applicable.

b. Identification of the uppermost aquifer and aquifers hydrologically interconnected beneath the facility property, including ground water flow direction and rate, and the basis for such identification ~~(i.e.,~~ for example the information obtained from hydrogeologic investigations of the facility area).

c. On the topographic map required under subdivision ~~g~~ q of subsection 2, a delineation of the waste management area, the property boundary, the proposed "point of compliance" as defined under section 33-24-05-52, the

proposed location of ground water monitoring wells as required under section 33-24-05-54, and to the extent possible, the information required in subdivision b.

d. A description of any plume of contamination that has entered the ground water from a regulated unit at the time that the application was submitted:

(1) Delineates the extent of the plume on the topographic map required under subdivision ~~g~~ g of subsection 2;

(2) Identifies the concentration of each appendix XII, of chapter 33-24-05, constituent throughout the plume or identifies the maximum concentrations of each appendix XII constituent in the plume.

e. Detailed plans and an engineering report describing the proposed ground water monitoring program to be implemented to meet the requirements of section 33-24-05-54.

f. If the presence of hazardous constituents has not been detected in the ground water at the time of permit application, the owner or operator must submit sufficient information, supporting data, and analysis to establish a detection monitoring program which meets the requirements of section 33-24-05-55. This submission must address the following items specified under section 33-24-05-55:

(1) A proposed list of indicator parameters, waste constituents, or reaction products that can provide a reliable indication of the presence of hazardous constituents in the ground water;

(2) A proposed ground water monitoring system;

(3) Background values for each proposed monitoring parameter or constituent, or procedures to calculate such values; and

(4) A description of proposed sampling, analysis and statistical comparison procedures to be analyzed in evaluating ground water monitoring data.

g. If the presence of hazardous constituents has been detected in the ground water at the point of compliance at the time of the permit application, the owner or operator must submit sufficient information, supporting data, and analysis to establish a compliance monitoring program which meets the requirements of section 33-24-05-56. Except as provided in subdivision e of subsection 8 of section 33-24-05-55, the owner or operator must also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of section 33-24-05-57 unless the owner or operator obtains a written authorization in advance from the department to submit a proposed permit schedule for submittal of such a plan. To demonstrate compliance with section 33-24-05-56, the owner or operator must address the following items:

(1) A description of the wastes previously handled at the facility;

(2) A characterization of the contaminated ground water, including concentrations of hazardous constituents;

(3) A list of hazardous constituents for which compliance monitoring will be undertaken in accordance with sections 33-24-05-54 and 33-24-05-56;

(4) Proposed concentration limits for each hazardous constituent, based on the criteria set forth in subsection 1 of section 33-24-05-51 including a justification for establishing any alternate concentration limit;

(5) Detailed plans and an engineering report describing the proposed ground water monitoring system, in accordance with the requirements of section 33-24-05-54; and

(6) A description of proposed sampling, analysis, and statistical comparison procedures to be utilized in evaluating ground water monitoring data.

h. If hazardous constituents have been measured in the ground water which exceed the concentration limits established under section 33-24-05-51 table 1, or if ground water monitoring conducted at the time of permit application under sections 33-24-05-47 through 33-24-05-51 at the waste boundary indicates the presence of hazardous constituents from the facility in ground water over the background concentrations, the owner or operator must submit sufficient information, supporting data, and analysis to establish a corrective action program which meets the requirements of section 33-24-05-57. However, an owner or operator is not required to submit information to establish a corrective action program if he demonstrates to the department that alternate concentration limits will protect human health and the environment after considering the criteria listed in subsection 2 of section 33-24-05-51. An owner or operator who is not required to establish a corrective action program for this reason must instead submit sufficient information to establish a compliance monitoring program which meets the requirements of section 33-24-05-56 and subdivision f. To demonstrate compliance with section 33-24-05-57, the owner or operator must address, at a minimum, the following items:

(1) A characterization of the contaminated ground water, including concentrations of hazardous constituents;

(2) The concentration limit for each hazardous constituent found in the ground water as set forth in section 33-24-05-51;

(3) Detailed plans and an engineering report describing the corrective action to be taken; and

(4) A description of how the ground water monitoring program will demonstrate the adequacy of the corrective action.

(5) The permit may contain a schedule for submittal of the information required in paragraphs 3 and 4 provided the owner or operator obtains written authorization from the department prior to submittal of the complete permit application.

4. Information requirements for solid waste management units.

a. The following information is required for each solid waste management unit at a facility seeking a permit:

(1) The location of a unit on the topographic map required under subdivision q of subsection 2.

(2) Designation of type of unit.

(3) General dimensions and structural description (supply any available drawings).

(4) When the unit was operated.

(5) Specification of all wastes that have been managed at the unit to the extent available.

b. The owner or operator of any facility containing one or more solid waste management units must submit all available information pertaining to any release of hazardous wastes or hazardous constituents from such unit or units.

c. The owner or operator must conduct and provide the results of sampling and analysis of ground water, land surface, and subsurface strata, surface water, or air, which may include the installation of wells, where the department ascertains it is necessary to complete a hazardous waste facility assessment that will determine if a more complete investigation is necessary.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-09

33-24-06-18. Permits by rule. Notwithstanding any other provision of this chapter or chapter 33-24-07, the following are deemed to have a hazardous waste permit if the conditions listed are met:

1. **Injection wells.** The owner or operator of an injection well disposing of hazardous waste, if the owner or operator:

   a. Has a permit for underground injection issued under 40 CFR part 144 or 145; and

   b. Complies with the conditions of that permit and the requirements of section 33-25-01-18 (requirements for wells managing hazardous waste) of article 33-25 (underground injection control).

   c. For underground injection control permits issued after November 8, 1984:

      (1) Complies with section 33-24-05-58; and

      (2) Where the underground injection control well is the only unit at a facility which requires a hazardous waste permit, complies with subsection 4 of section 33-24-06-17.

2. **Publicly owned treatment works.** The owner or operator of a publicly owned treatment works which accepts for treatment hazardous waste, if the owner or operator:

   a. Has a North Dakota pollutant discharge elimination system permit;

   b. Complies with the conditions of that permit; and

   c. Complies with the following:

      (1) Section 33-24-05-02, identification number.

(2) Section 33-24-05-38, use of manifest system.

(3) Section 33-24-05-39, manifest discrepancies.

(4) Subsection 1 and subdivision a of subsection 2 of section 33-24-05-40, operating record.

(5) Section 33-24-05-42, ~~annual~~ biennial report.

(6) Section 33-24-05-43, unmanifested waste report.

(7) Section 33-24-05-58, corrective action for solid waste management units.

History: Effective January 1, 1984; amended effective October 1, 1986; December 1, 1991; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-19. ~~Short-term and phased permits.~~ Special forms of permits.

1. **Emergency permits.** Notwithstanding any other provisions of this chapter or chapter 33-24-07, if the department finds an imminent and substantial endangerment to human health or the environment, the department may issue a temporary emergency permit to a nonpermitted facility to allow treatment, storage, or disposal of hazardous waste or a permitted facility to allow treatment, storage, or disposal of a hazardous waste not covered by an effective permit. This emergency permit:

   a. May be oral or written. If oral, it shall be followed in five days by a written emergency permit;

   b. May not exceed ninety days in duration;

   c. Must clearly specify the hazardous wastes to be received and the manner and location of their treatment, storage, or disposal;

   d. May be terminated by the department at any time without process if it determines that termination is appropriate to protect human health and the environment;

   e. Must be accompanied by a public notice published under subsection 4 of section 33-24-07-06, including:

      (1) Name and address of the office granting the emergency authorization;

      (2) Name and location of the permitted hazardous waste management facility;

      (3) A brief description of the wastes involved;

      (4) A brief description of the action authorized and reasons for authorizing it; and

      (5) Duration of the emergency permit.

   f. Must incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of this chapter and chapter 33-24-05.

2. **Hazardous waste incinerator permits.**

a. For the purposes of determining operational readiness following completion of physical construction, the department shall establish permit conditions, including, but not limited to, allowable waste feeds and operating conditions in the permit to a new hazardous waste incinerator. These permit conditions will be effective for the minimum time required to bring the incinerator to a point of operational readiness sufficient to conduct a trial burn, not to exceed seven hundred twenty operating time for treatment of hazardous waste. The department may extend the duration of this operational period once for up to seven hundred twenty additional at the request of the applicant when good cause is shown. The permit may be modified to reflect the extension according to section 33-24-06-14.

(1) Applicants shall submit a statement with the permit application which suggests the conditions necessary to operate in compliance with the performance standards of section 33-24-05-147 during this period. This statement should include, at a minimum, restrictions on waste constituents, waste feed rates, and the operating parameters identified in section 33-24-05-149.

(2) The department will review this statement and any other relevant information submitted with the permit application and specify requirements for this period sufficient to meet the performance standards of section 33-24-05-147 based on its engineering judgment.

b. For the purposes of determining feasibility of compliance with the performance standards of section 33-24-05-147 and of determining adequate operating conditions under section 33-24-05-149, the department shall establish conditions in the permit to a new hazardous waste incinerator to be effective during the trial burn.

(1) Applicants must propose a trial burn plan prepared under paragraph 2 with the permit application.

(2) The trial burn plan must include the following information:

(a) An analysis of each waste or mixture of wastes to be burned which includes:

[1] Heat value of the waste in the form and composition in which it will be burned.

[2] Viscosity (if applicable), or description of physical form of the waste.

[3] An identification of any hazardous organic constituents listed in chapter 33-24-02, appendix V, which are present in the wastes to be burned, except that the applicant need not analyze for constituents listed in chapter 33-24-02, appendix V, which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified and the basis for their exclusion stated. The waste analysis must rely on analytical techniques specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" SW-846, as ~~(~~incorporated by reference~~, see~~ in section 33-24-01-05~~)~~, or their equivalent.

[4] An approximate quantification of the hazardous constituents identified in the waste within the precision produced by the analytical methods specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" SW-846, as ~~(~~incorporated by reference~~, see~~ in section 33-24-01-05~~)~~, or their equivalent.

(b) A detailed engineering description of the incinerator for which the trial burn permit is sought including:

[1] Manufacturer's name and model number of incinerator (if available).

[2] Type of incinerator.

[3] Linear dimensions of the incinerator unit including cross-sectional area of combustion chamber.

[4] Description of the auxiliary fuel system (type/feed).

[5] Capacity of prime mover.

[6] Description of automatic waste feed cutoff systems.

[7] Stack gas monitoring and pollution control equipment.

[8] Nozzle and burner design.

[9] Construction materials.

[10] Location and description of temperature, pressure, and flow indicating and control devices.

(c) A detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(d) A detailed test schedule for each waste for which the trial burn is planned including dates, duration, quantity of waste to be burned, and other factors relevant to the department's decision under paragraph 5.

(e) A detailed test protocol, including, ~~for~~ each waste identified, the ranges of temperature, waste feed rate, combustion gas velocity, use of auxiliary fuel, and any other relevant parameters that will be varied to affect the destruction and removal efficiency of the incinerator.

(f) A description of, and planned operating conditions for, any emission control equipment which will be used.

(g) Procedures for rapidly stopping waste feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.

(h) Such other information as the department reasonably finds necessary to determine whether to approve the trial burn plan

in light of the purposes of this paragraph and the criteria in paragraph 5.

(3) In reviewing the trial burn plan, the department shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this subsection.

(4) Based on the waste analysis data in the trial burn plan, the department will specify as trial principle organic hazardous constituents ~~(trial principle organic hazardous constituents),~~ those constituents for which destruction and removal efficiencies must be calculated during the trial burn. These trial principle organic hazardous constituents will be specified by the department based on its estimate of the difficulty of incineration of the constituents identified in the waste analysis, the concentration or mass in the waste feed, and, for wastes listed in chapter 33-24-02, the hazardous waste organic constituent or constituents identified in appendix IV of that chapter as the basis for listing.

(5) The department shall approve a trial burn plan if it finds that:

(a) The trial burn is likely to determine whether the incinerator performance standard required by section 33-24-05-147 can be met;

(b) The trial burn itself will not present an imminent hazard to human health or the environment;

(c) The trial burn will help the department determine operating requirements to be specified under section 33-24-05-149; and

(d) The information sought in subparagraphs a and c cannot reasonably be developed through other means.

(6) The department must send a notice to all persons on the facility mailing list as set forth in subdivision a of subsection 3 of section 33-24-07-06 and to the appropriate units of state and local government as set forth in subdivision b of subsection 3 of section 33-24-07-06 announcing the scheduled commencement and completion dates for the trial burn. The applicant may not commence the trial burn until after the department has issued such notice.

(a) This notice must be mailed within a reasonable time period before the scheduled trial burn. An additional notice is not required if the trial burn is delayed due to circumstances beyond the control of the facility or the department.

(b) This notice must contain:

[1] The name and telephone number of the applicant's contact person;

[2] The name and telephone number of the department's contact office;

[3] The location where the approved trial burn plan and any supporting documents can be reviewed and copied; and

[4] An expected time period for commencement and completion of the trial burn.

(7) During each approved trial burn (or as soon after the burn as practicable), the applicant must make the following determinations:

(a) A quantitative analysis of the trial principle organic hazardous constituents in the waste feed to the incinerator.

(b) A quantitative analysis of the exhaust gas for the concentration and mass emissions of the trial principle organic hazardous constituents, oxygen, and hydrogen chloride.

(c) A quantitative analysis of the scrubber water (if any), ash residues, and other residues, for the purpose of estimating the fate of the trial principle organic hazardous constituents.

(d) A computation of destruction and removal efficiency, in accordance with the destruction and removal efficiency formula specified in subsection 1 of section 33-24-05-147.

(e) If the hydrogen chloride emission rate exceeds one and eight-tenths kilograms of hydrogen chloride per hour [4 pounds per hour], a computation of the hydrogen chloride removal efficiency in accordance with subsection 2 of section 33-24-05-147.

(f) A computation of particulate emissions, in accordance with subsection 3 of section 33-24-05-147.

(g) An identification of sources of fugitive emissions and their means of control.

(h) A measurement of average, maximum, and minimum temperatures and combustion gas velocity.

(i) A continuous measurement of carbon monoxides in the exhaust gas.

(j) Such other information as the department may specify as necessary to ensure that the trial burn will determine compliance with the performance standard in section 33-24-05-147 and to establish the operating conditions required by section 33-24-05-149 as necessary to meet that performance standard.

(~~7~~8) The applicant shall submit to the department a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and shall submit the results of all the determinations required in paragraph 6. This submission must be made within ninety days of the completion of the trial burn, or later if approved by the department.

(~~8~~9) All data collected during any trial burn must be submitted to the department following the completion of the trial burn.

(~~9~~10) All submissions required by this subsection must be certified on behalf of the applicant by the signature of a person

authorized to sign a permit application or a report under section 33-24-06-03.

(~~10~~11) Based on the results of the trial burn, the department shall set the operating requirements in the final permit according to section 33-24-05-149. The permit modification shall proceed according to section 33-24-06-14.

c. For the purposes of allowing operation of a new hazardous waste incinerator following completion of the trial burn and prior to final modification of the permit conditions to reflect the trial burn results, the department may establish permit conditions including, but not limited to allowable waste feeds and operating conditions sufficient to meet the requirements of section 33-24-05-149 in the permit to a new hazardous waste incinerator. These permit conditions will be effective for the minimum time required to complete sample analysis, data computation, and submission of the trial burn results by the applicant, and modification of the facility permit by the department.

(1) Applicants must submit a statement with the permit application which identifies the conditions necessary to operate in compliance with the performance standards of section 33-24-05-147 during this period. This statement should include, at a minimum, restrictions on waste constituents, waste feed rates and the operating parameters identified in section 33-24-05-149.

(2) The department will review this statement and any other relevant information submitted with the permit application and specify those requirements for this period most likely to meet the performance standards of section 33-24-05-147 based on its engineering judgment.

d. For the purpose of determining feasibility of compliance with the performance standards of section 33-24-05-147 and of determining adequate operating conditions under section 33-24-05-149, the applicant for a permit for an existing hazardous waste incinerator must prepare and submit a trial burn plan and perform a trial burn in accordance with paragraph 2 of subdivision w of subsection 2 of section 33-24-06-17 and paragraphs 2 through 9 of subdivision b or, instead, submit other information as specified in paragraph 3 of subdivision w of subsection 2 of section 33-24-06-17. Applicants submitting information under paragraph 1 of subdivision w of subsection 2 of section 33-24-06-17 are exempt from compliance with sections 33-24-05-147 and 33-24-05-149 and, therefore, are exempt from the requirement to conduct a trial burn. Applicants who submit trial burn plans and receive approval before submission of a permit application must complete the trial burn and submit the results specified in paragraph 7 of subdivision b, with part b of the permit application. If completion of this process conflicts with the date set for submission of the part b application, the applicant must contact the department to establish a later date for submission of the part b application or the trial burn results. Trial burn results must be submitted prior to issuance of the permit. When the applicant submits a trial burn plan with part b of the permit application, the department will specify a time period prior to permit issuance in which the trial burn must be conducted and the results submitted.

3. Permits for land treatment demonstrations using field tests or laboratory analyses.

a. For the purpose of allowing an owner or operator to meet the treatment demonstration requirements of section 33-24-05-162 the department may

issue a treatment demonstration permit. The permit must contain only those requirements necessary to meet the standards in subsection 3 of section 33-24-05-162. The permit may be issued either as a treatment or disposal permit covering only the field test or laboratory analyses or as a two-phase facility permit covering field tests or laboratory analyses and design construction, operation, and maintenance of the land treatment unit.

(1) The department may issue a two-phase facility permit if it finds that based on information submitted in the permit application substantial, although incomplete or inconclusive, information already exists on which to base the issuance of a facility permit.

(2) If the department finds that not enough information exists upon which it can establish permit conditions to attempt to provide for compliance with all the requirements of the land treatment requirements in sections 33-24-05-160 through 33-24-05-175, it shall issue a treatment demonstration permit covering only the field test or laboratory analyses.

b. If the department finds that a phased permit may be issued it will establish as requirements in the first phase of the facility permit conditions for conducting a field test or laboratory analyses. These permit conditions will contain design and operating parameters (including the duration of the tests or analyses and, in the case of field tests, the horizontal and vertical dimensions of the treatment zone), monitoring procedures, postdemonstration cleanup activities, and any other conditions which the department finds may be necessary under subsection 3 of section 33-24-05-162. The department will include conditions in the second phase of the facility permit to attempt to meet all the land treatment requirements in sections 33-24-05-160 through 33-24-05-175 pertaining to unit design, construction, operation and maintenance. The department will establish these conditions in the second phase of the permit, based upon the substantial but incomplete or inconclusive information contained in the permit application.

(1) The first phase of the permit will be effective as provided in subsection 2 of section 33-24-07-11.

(2) The second phase of the permit will be effective as provided in subdivision d.

c. When the owner or operator who has been issued a two-phase permit has completed the treatment demonstration the owner or operator shall submit to the department a certification signed by a person authorized to sign a permit application or report under section 33-24-06-03 that the field tests or laboratory analyses have been carried out in accordance with the conditions specified in phase one of the permit for conducting such tests or analyses. The owner or operator shall also submit all data collected during the field tests or laboratory analyses within ninety days of completion of those tests or analyses, unless the department approves a later date.

d. If the department determines that the results of the field tests or laboratory analyses meet the requirements of section 33-24-05-162, it will modify the second phase of the permit to incorporate any requirements necessary for operation of the facility in compliance with the land treatment requirements of sections 33-24-05-160 through 33-24-05-175, based upon the results of the field tests or laboratory analyses.

(1) This permit modification may proceed under section 33-24-06-14, or otherwise proceed as a modification under subdivision b of subsection 1 of section 33-24-06-12. If such modifications are necessary, the second phase of the permit will become effective only after those modifications have been made.

(2) If no modifications of the second phase of the permit are necessary, the department will give notice of the department's final decision to the permit applicant and to each person who submitted written comments on the phased permit or who requested notice of the final decision on the second phase of the permit. The second phase of the permit then will become effective as specified in chapter 33-24-07.

4. **Permits for boilers and industrial furnaces burning hazardous waste.**

a. General. Owners and operators of new boilers and industrial furnaces (those not operating under the interim status standards of section 33-24-05-528) are subject to subsections 2 through 6. Boilers and industrial furnaces operating under the interim status standards of section 33-24-05-528 are subject to subsection 7.

b. Permit operating periods for new boilers and industrial furnaces. A permit for a new boiler or industrial furnace shall specify appropriate conditions for the following operating periods:

(1) Pretrial burn period. For the period beginning with initial introduction of hazardous waste and ending with initiation of the trial burn, and only for the minimum time required to bring the boiler or industrial furnace to a point of operational readiness to conduct a trial burn, not to exceed seven hundred twenty operating time when burning hazardous waste, the department must establish in the pretrial burn period of the permit conditions, including but not limited to, allowable hazardous waste feed rates and operating conditions. The department may extend the duration of this operational period once, for up to seven hundred twenty additional hours, at the request of the applicant when good cause is shown. The permit may be modified to reflect the extension according to section 33-24-06-14.

(a) Applicants must submit a statement, with part B of the permit application, that suggests the conditions necessary to operate in compliance with the standards of sections 33-24-05-529 through 33-24-05-532 during this period. This statement should include, at a minimum, restrictions on the applicable operating requirements identified in subsection 5 of section 33-24-05-527 .

(b) The department will review this statement and any other relevant information submitted with part B of the permit application and specify requirements for this period sufficient to meet the performance standards of sections 33-24-05-529 through 33-24-05-532 based on the department's engineering judgment.

(2) Trial burn period. For the duration of the trial burn, the department must establish conditions in the permit for the purposes of determining feasibility of compliance with the performance standards of sections 33-24-05-529 through 33-24-05-532 and determining adequate operating conditions under subsection 5 of section 33-24-05-527 . Applicants must propose a trial burn plan,

prepared under subsection 3, to be submitted with part B of the permit application.

(3) Posttrial burn period.

(a) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, and submission of the trial burn results by the applicant, and review of the trial burn results and modification of the facility permit by the department to reflect the trial burn results, the department will establish the operating requirements most likely to ensure compliance with the performance standards of sections 33-24-05-529 through 33-24-05-532 based on the department's engineering judgment.

(b) Applicants must submit a statement, with part B of the application, that identifies the conditions necessary to operate during this period in compliance with the performance standards of sections 33-24-05-529 through 33-24-05-532. This statement should include, at a minimum, restrictions on the operating requirements provided by subsection 5 of section 33-24-05-527 .

(c) The department will review this statement and any other relevant information submitted with part B of the permit application and specify requirements for this period sufficient to meet the performance standards of sections 33-24-05-529 through 33-24-05-532 based on the department's engineering judgment.

(4) Final permit period. For the final period of operation, the department will develop operating requirements in conformance with subsection 5 of section 33-24-05-527 that reflect conditions in the trial burn plan and are likely to ensure compliance with the performance standards of sections 33-24-05-529 through 33-24-05-532. Based on the trial burn results, the department shall make any necessary modifications to the operating requirements to ensure compliance with the performance standards. The permit modification shall proceed according to section 33-24-06-14.

c. Requirements for trial burn plans. The trial burn plan must include the following information. The department, in reviewing the trial burn plan, shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this paragraph:

(1) An analysis of each feed stream, including hazardous waste, other fuels, and industrial furnace feedstocks, as fired, that includes:

(a) Heating value, levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium, total chlorine/chloride, and ash;

(b) Viscosity or description of the physical form of the feed stream;

(2) An analysis of each hazardous waste, as fired, including:

(a) An identification of any hazardous organic constituents listed in appendix V of chapter 33-24-02, that are present in the feed stream, except that the applicant need not analyze for constituents listed in appendix V of chapter 33-24-02 that would reasonably not be expected to be found in the hazardous waste. The constituents excluded from analysis must be identified and the basis for this exclusion explained. The analysis must be conducted in accordance with analytical techniques specified in "Test Methods for the Evaluating Solid Waste, Physical/Chemical Methods" SW-846, as incorporated by reference in section 33-24-01-05, or their equivalent.

(b) An approximate quantification of the hazardous constituents identified in the hazardous waste, within the precision produced by the analytical methods specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" as incorporated by reference in section 33-24-01-05, or other equivalent.

(c) A description of blending procedures, if applicable, prior to firing the hazardous waste, including a detailed analysis of the hazardous waste prior to blending, an analysis of the material with which the hazardous waste is blended, and blending ratios.

(3) A detailed engineering description of the boiler or industrial furnace, including:

(a) Manufacturer's name and model number of the boiler or industrial furnace;

(b) Type of boiler or industrial furnace;

(c) Maximum design capacity in appropriate units;

(d) Description of the feed system for the hazardous waste, and, as appropriate, other fuels and industrial furnace feedstocks;

(e) Capacity of hazardous waste feed system;

(f) Description of automatic hazardous waste feed cutoff system or systems;

(g) Description of any air pollution control system; and

(h) Description of stack gas monitoring and any pollution control monitoring systems.

(4) A detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(5) A detailed test schedule for each hazardous waste for which the trial burn is planned, including dates, duration, quantity of hazardous waste to be burned, and other factors relevant to the department's decision under subdivision b of subsection 2.

(6) A detailed test protocol, including, for each hazardous waste identified, the ranges of hazardous waste feed rate, and, as

appropriate, the feed rates of other fuels and industrial furnace feedstocks, and any other relevant parameters that may affect the ability of the boiler or industrial furnace to meet the performance standards in sections 33-24-05-529 through 33-24-05-532.

(7) A description of, and planned operating conditions for, any emission control equipment that will be used.

(8) Procedures for rapidly stopping the hazardous waste feed and controlling emissions in the event of an equipment malfunction.

(9) Such other information as the department reasonably finds necessary to determine whether to approve the trial burn plan in light of the purposes of this paragraph and the criteria in subdivision b of subsection 2.

d. Trial burn procedures.

(1) A trial burn must be conducted to demonstrate conformance with the standards of sections 33-24-05-529 through 33-24-05-532 under an approved trial burn plan.

(2) The department shall approve a trial burn plan if the owner or operator finds that:

(a) The trial burn is likely to determine whether the boiler or industrial furnace can meet the performance standards of sections 33-24-05-529 through 33-24-05-532;

(b) The trial burn itself will not present an imminent hazard to human health and the environment;

(c) The trial burn will help the department to determine operating requirements to be specified under subsection 5 of section 33-24-05-527; and

(d) The information sought in the trial burn cannot reasonably be developed through other means.

(3) The department must send a notice to all persons on the facility mailing list and to the appropriate units of local government announcing the scheduled commencement and completion dates for the trial burn. The applicant may not commence the trial burn until after the department has issued such notice. This notice must be mailed within a reasonable time period before the trial burn. An additional notice is not required if the trial burn is delayed due to circumstances beyond the control of the facility or the department. This notice must contain:

(a) The name and telephone number of applicant's contact person;

(b) The name and telephone number of the department contact;

(c) The location where the approved trial burn plan and any supporting documents can be reviewed and copied; and

(d) An expected time period for commencement and completion of the trial burn.

(4) The applicant must submit to the department a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and must submit the results of all the determinations required in subdivision 3. This submission shall be made within ninety days of completion of the trial burn, or later if approved by the department.

(5) All data collected during any trial burn must be submitted to the department following completion of the trial burn.

(6) All submissions required by this paragraph must be certified on behalf of the applicant by the signature of a person authorized to sign a permit application or a report under section 33-24-06-03.

e. Special procedures for destruction and removal efficiency trial burns. When a destruction and removal efficiency trial burn is required under subsection 1 of section 33-24-05-529, the department will specify (based on the hazardous waste analysis data and other information in the trial burn plan) as trial principle organic hazardous constituents those compounds for which destruction and removal efficiencies must be calculated during the trial burn. These trial principle organic hazardous constituents will be specified by the department based on information including the department's estimate of the difficulty of destroying the constituents identified in the hazardous waste analysis, their concentrations or mass in the hazardous waste feed, and, for hazardous waste containing or derived from wastes listed in sections 33-24-02-15 through 33-24-05-19, the hazardous waste organic constituents identified in appendix V of chapter 33-24-02 as the basis for listing.

f. Determinations based on trial burn. During each approved trial burn (or as soon after the burn as is practicable), the applicant must make the following determinations:

(1) A quantitative analysis of the levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, thallium, silver, and chlorine/chloride, in the feed streams (hazardous waste, other fuels, and industrial furnace feedstocks);

(2) When a destruction and removal efficiency trial burn is required under subsection 1 of section 33-24-05-529 :

(a) A quantitative analysis of the trial principle organic hazardous constituents in the hazardous waste feed;

(b) A quantitative analysis of the stack gas for the concentration and mass emissions of the trial principle organic hazardous constituents; and

(c) A computation of destruction and removal efficiency, in accordance with the destruction and removal efficiency formula specified in subsection 1 of section 33-24-05-529;

(3) When a trial burn for chlorinated dioxins and furans is required under subsection 5 of section 33-24-05-529, a quantitative analysis of the stack gas for the concentration and mass emission rate of the 2,3,7,8-chlorinated tetra-octa congeners of chlorinated dibenzo-p-dioxins and furans, and a computation showing conformance with the emission standard;

(4) When a trial burn for particulate matter, metals, hydrogen chloride or chlorine is required under section 33-24-05-530, subsection 3 or 4 of section 33-24-05-531, or subdivision b of subsection 2 or subsection 3 of section 33-24-05-532, a quantitative analysis of the stack gas for the concentrations and mass emissions of particulate matter, metals, or hydrogen chloride and chlorine, and computations showing conformance with the applicable emission performance standards;

(5) When a trial burn for destruction and removal efficiency, metals, or hydrogen chloride or chlorine is required under subsection 1 of section 33-24-05-529, subsection 3 or 4 of section 33-24-05-531, or subdivision b of subsection 2 or subsection 3 of section 33-24-05-532, a quantitative analysis of the scrubber water (if any), ash residues, other residues, and products for the purpose of estimating the fate of the trial principle organic hazardous constituents, metals, and chlorine/chloride;

(6) An identification of sources of fugitive emissions and their means of control;

(7) A continuous measurement of carbon monoxide, oxygen, and where required, hydrocarbons, in the stack gas; and

(8) Such other information as the department may specify as necessary to ensure that the trial burn will determine compliance with the performance standards in sections 33-24-05-529 through 33-24-05-532 and to establish the operating conditions required by subsection 5 of section 33-24-05-527 as necessary to meet those performance standards.

g. Interim status boilers and industrial furnaces. For the purpose of determining feasibility of compliance with the performance standards of sections 33-24-05-529 through 33-24-05-532 and of determining adequate operating conditions under section 33-24-05-528, applicants owning or operating existing boilers or industrial furnaces operated under the interim status standards of section 33-24-05-528 must either prepare and submit a trial burn plan and perform a trial burn in accordance with the requirements or submit other information as specified in subparagraph 6 of paragraph 1 of subdivision ff. of subsection 2 of section 33-24-06-17. Applicants who submit a trial burn plan and receive approval before submission of the part B permit application must complete the trial burn and submit the results specified in subsection 6 with the part B permit application. If completion of this process conflicts with the date set for submission of the part B application, the applicant must contact the department to establish a later date for submission of the part B application or the trial burn results. If the applicant submits a trial burn plan with part B of the permit application, the trial burn must be conducted and the results submitted within a time period prior to permit issuance to be specified by the department.

History: Effective January 1, 1984; amended effective December 1, 1988; December 1, 1991; January 1, 1994; July 1, 1997.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-09

33-24-06-20. Research, development, and demonstration permits.

1. The department may issue a research, development, and demonstration permit for any hazardous waste treatment facility which proposes to utilize an innovative and experimental hazardous waste treatment technology or process for which permit standards for such experimental activity have not been promulgated under chapter 33-24-05. Any such permit must include such terms and conditions as will assure protection of human health and the environment. Such permits:

   a. Must provide for the construction of such facilities as necessary, and for operation of a facility for not longer than one year unless renewed as provided in subsection 4;

   b. Must provide for the receipt and treatment by the facility of only those types and quantities of hazardous waste which the department deems necessary for purposes of determining the efficacy and performance capabilities of the technology or process and the effects of such technology on human health and the environment; and

   c. Must include such requirements as the department deems necessary to protect human health and the environment (including, but not limited to, requirements regarding monitoring, operation, financial responsibility, closure, and remedial action), and such requirements as the department deems necessary regarding testing and providing of information to the department with respect to the operation of the facility.

2. For the purpose of expediting review and issuance of permits under this section, the department may, consistent with the protection of human health and the environment, modify or waive permit application and permit issuance requirements in chapters 33-24-06 and 33-24-07 except that there may be no modification or waiver of regulations regarding financial responsibility (including insurance) or of procedures regarding public participation.

3. The department may order an immediate termination of all operations at the facility at any time he determines that termination is necessary to protect human health and the environment.

4. Any permit issued under this section may be renewed not more than three times. Each such renewal shall be for a period of not more than one year.

History: Effective January 1, 1984; amended effective October 1, 1986.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-06-21. Fees. The department may assess and collect reasonable fees for activities associated with permit applications, and for the issuance, modification, revocation and reissuance, termination, renewal, and transfer of permits.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05, 23-20.3-05.1

Appendix I to Section 33-24-06-14 - Classification of Permit Modification

Modifications	Class
A. General Permit Provisions	
1. Administrative and informational changes	1
2. Correction of typographical errors	1
3. Equipment replacement or upgrading with functionally equivalent components (for example, pipes, valves, pumps, conveyors, controls)	1
4. Changes in the frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the permittee:	
a. To provide for more frequent monitoring, reporting, sampling, or maintenance.	1
b. Other changes	2
5. Schedule of compliance:	
a. Changes in interim compliance dates, with prior approval of the department.	[1]1
b. Extension of final compliance date.	3
6. Changes in expiration date of permit to allow earlier permit termination, with prior approval of the department.	[1]1
7. Changes in ownership or operational control of a facility, provided the procedures of subsection 2 of section 33-24-06-14 are followed.	[1]1
B. General Facility Standards	
1. Changes to waste sampling or analysis methods:	
a. To conform with department guidance or regulations.	1
b. To incorporate changes associated with F039 (multi-source leachate) sampling or analysis methods.	1
c. To incorporate changes associated with underlying hazardous constituents in ignitable or corrosive wastes.	~~1~~ [1]1
d. Other changes.	2
2. Changes to analytical quality assurance/control plan:	
a. To conform with department guidance or regulations.	1
b. Other changes.	2
3. Changes in procedures for maintaining the operating record.	1
4. Changes in frequency or content of inspection schedules.	2
5. Changes in the training plan:	
a. That affect the type or decrease the amount of training given to employees.*	2
b. Other changes.	1
6. Contingency plan:	
a. Changes in emergency procedures ~~(i.e.~~ for example, spill or release response procedures).	2
b. Replacement with functionally equivalent equipment, upgrade, or relocate emergency equipment listed.	1
c. Removal of equipment from emergency equipment list.	2
d. Changes in name, address, or phone number of coordinators or other persons or agencies identified in the plan.	1
7. Construction quality assurance plan:	
a. Changes that the CQA officer certifies in the operating record will provide equivalent or better certainty that the unit components meet the design specifications.	1

Appendix I to Section 33-24-06-14 - Classification of Permit Modification

Modifications	Class
b. Other changes	2
Note: When a permit modification (such as introduction of a new unit) requires a change in facility plans or other general facility standards, that change shall be reviewed under the same procedures as the permit modification.	
C. Groundwater Protection	
1. Changes to wells:	
a. Changes in the number, location, depth, or design of upgradient or downgradient wells of permitted groundwater monitoring system.	2
b. Replacement of an existing well that has been damaged or rendered inoperable, without change to location, design, or depth of the well.	1
2. Changes in groundwwater sampling or analysis procedures or monitoring schedule, with prior approval of the department.	[1]1
3. Changes in statistical procedure for determining whether a statistically significant change in ground-water quality between upgradient and downgradient wells has occurred, with prior approval of the department.	[1]1
4. Changes in point of compliance.	[1]2
5. Changes in indicator parameters, hazardous constituents, or concentration limits (including ACLs):	
a. As specified in the groundwater protection standard.	3
b. As specified in the detection monitoring program.	2
6. Changes to a detection monitoring program as required by subsection ~~10~~ 8 of section 33-24-05-55, unless otherwise specified in this appendix.	2
7. Compliance monitoring program:	
a. Addition of compliance monitoring program as required by subdivision d of subsection ~~8~~ 7 of section 33-24-05-55 and section 330-24-05-56.	3
b. Changes to a compliance monitoring program as required by subsection ~~11~~ 10 of section 33-24-05-56, unless otherwise specified in this appendix.	2
8. Corrective action program:	
a. Addition of a corrective action program as required by subdivision b of subsection ~~9~~ 8 of section 33-24-05-56 and section 33-24-05-57.	3
b. Changes to a corrective action program as required by subsection 8 of section 33-24-05-57, unless otherwise specified in this appendix.	2
D. Closure	
1. Changes to the closure plan:	
a. Changes in estimate of maximum extent of operations or maximum inventory of waste onsite at any time during the active life of the facility, with prior approval of the department.	[1]1
b. Changes in the closure schedule for any unit, changes in the final closure schedule for the facility, or extension of the closure period, with prior approval of the department.	[1]1
c. Changes in the expected year of final closure, where other permit conditions are not changed, with prior approval of the department.	[1]1
d. Changes in procedures for decontamination of facility equipment or structures, with prior approval of the department.	[1]1
e. Changes in approved closure plan resulting from unexpected events occurring during partial or final closure, unless otherwise specified in this appendix.	2

Appendix I to Section 33-24-06-14 - Classification of Permit Modification

Modifications	Class
f. Extension of the closure period to allow a landfill, surface impoundment or land treatment unit to receive non-hazardous wastes after final receipt of hazardous wastes under subsections 4 and 5 of section 33-24-05-62.	2
2. Creation of a new landfill unit as part of closure.	3
3. Addition of the following new units to be used temporarily for closure activities:	
a. Surface impoundments.	3
b. Incinerators.	3
c. Waste piles that do not comply with subsection 3 of section 33-24-05-130.	3
d. Waste piles that comply with subsection 3 of section 33-24-05-130.	2
e. Tanks or containers (other than specified below).	2
f. Tanks used for neutralization, dewatering, phase separation, or component separation, with prior approval of the department.	[1]1
E. Post-Closure	
1. Changes in name, address, or phone number of contact in postclosure plan.	1
2. Extension of postclosure care period.	2
3. Reduction in the postclosure care period.	3
4. Changes to the expected year of final closure, where other permit conditions are not changed.	1
5. Changes in postclosure plan necessitated by events occurring during the active life of the facility, including partial and final closure.	2
F. Containers	
1. Modification or addition of container units:	
a. Resulting in greater than 25% increase in the facility's container storage capacity, except as provided in F(1)(c) and F(4)(a) below.	3
b. Resulting in up to 25% increase in the facility's container storage capacity, except as provided in F(1)(c) and F(4)(a) below.	2
c. Or treatment processes necessary to treat wastes that are restricted from land disposal to meet some or all of the applicable treatment standards or to treat wastes to satisfy (in whole or in part) the standard of "use of practically available technology that yields the greatest environmental benefit" ~~contained in 40 CFR 268.8(a)(2)(ii),~~ with prior approval of the department. This modification may also involve addition of new waste codes or narrative descriptions of wastes. It is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	[1]1
2.	
a. Modification of a container unit without increasing the capacity of the unit.	2
b. Addition of a roof to a container unit without alteration of the containment system.	1
3. Storage of different wastes in containers, except as provided in (F)(4) below:	
a. That require additional or different management practices from those authorized in the permit.	3
b. That do not require additional or different management practices from those authorized in the permit.	2
Note: See subsection 7 of section 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
4. Storage ~~of~~ or treatment of different wastes in containers:	

Modifications	Class
a. That require addition of units or change in treatment process or management standards, provided that the wastes are restricted from land disposal and are to be treated to meet some or all of the applicable treatment standards, or that are to be treated to satisfy (in whole or in part) the standard of "use of practically available technology that yields the greatest environmental benefit" contained in 40 CFR 268.8(a)(2)(ii). This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	1
b. That do not require the addition of units or a change in the treatment process or management standards, and provided that the units have previously received wastes of the same type (for example, incinerator scrubber water). This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	[1]1
G. Tanks	
1.	
a. Modification or addition of tank units resulting in greater than 25% increase in the facility's tank capacity, except as provided in G(1)(c), G(1)(d), and G(1)(e) below.	3
b. Modification or addition of tank units resulting in up to 25% increase in the facility's tank capacity, except as provided in G(1)(d) and G(1)(e) below.	2
c. Addition of a new tank that will operate for more than 90 days using any of the following physical or chemical treatment technologies: neutralization, dewatering, phase separation, or component separation.	2
d. After prior approval of the department, addition of a new tank that will operate for up to 90 days using any of the following physical or chemical treatment technologies: neutralization, dewatering, phase separation, or component separation.	[1]1
e. Modification or addition of tank units or treatment processes necessary to treat wastes that are restricted from land disposal to meet some or all of the applicable treatment standards or to treat wastes to satisfy (in whole or in part) the standard of ''use of practically available technology that yields the greatest environmental benefit'' contained in 40 CFR 268.8(a)(2)(ii), with prior approval of the department. This modification may also involve addition of new waste codes. It is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	[1]1
2. Modification of a tank unit or secondary containment system without increasing the capacity of the unit.	2
3. Replacement of a tank with a tank that meets the same design standards and has a capacity within +/- 10% of the replaced tank provided.	1
a. The capacity difference is no more than 1500 gallons,	
b. The facility's permitted tank capacity is not increased, and	
c. The replacement tank meets the same conditions in the permit.	
4. Modification of a tank management practice.	2
5. Management of different wastes in tanks:	
a. That require additional or different management practices, tank design, different fire protection specifications, or significantly different tank treatment process from that authorized in the permit, except as provided in (G)(5)(c) below.	3
b. That do not require additional or different management practices, tank design, different fire protection specifications, or significantly different tank treatment process than authorized in the permit, except as provided in (G)(5)(d).	2
c. That require addition of units or change in treatment processes or management standards, provided that the wastes are restricted from land disposal and are to be treated to meet some or all of the applicable treatment standards or that are to be treated to satisfy (in whole or in part) the standard of "use of practically available technology that yields the greatest environmental benefit" contained in 40 CFR 268.8(a)(2)(ii). The modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	[1]1

Modifications	Class
d. That do not require the addition of units or a change in the treatment process or management standards, and provided that the units have previously received wastes of the same type (for example, incinerator scrubber water). This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	1
Note: See subsection 7 of section 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
H. Surface Impoundments	
1. Modification or addition of surface impoundment units that result in increasing the facility's surface impoundment storage or treatment capacity.	3
2. Replacement of a surface impoundment unit.	3
3. Modification of a surface impoundment unit without increasing the facility's surface impoundment storage or treatment capacity and without modifying the unit's liner, leak detection system, or leachate collection system.	2
4. Modification of a surface impoundment management practice.	2
5. Treatment, storage, or disposal of different wastes in surface impoundments:	
a. That require additional or different management practices or different design of the liner or leak detection system than authorized in the permit.	3
b. That do not require additional or different management practices or different design of the liner or leak detection system than authorized in the permit.	2
c. That are wastes restricted from land disposal that meet the applicable treatment standards or that are treated to satisfy the standard of "use of practically available technology that yields the greatest environmental benefit" contained in 40 CFR 268.8(a)(2)(ii), and provided that the unit meets the minimum technological requirements stated in subdivision b of subsection 8 of section 33-24-05-254. This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	1
d. That are residues from wastewater treatment or incineration, provided that disposal occurs in a unit that meets the minimum technological requirements stated in subdivision b of subsection 8 of section 33-24-05-254, and provided further that the surface impoundment has previously received wastes of the same type (for example, incinerator scrubber water). This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028)	1
6. Modifications of unconstructed units to comply with subsection 3 of 33-24-05-116, section 33-24-05-123, section 33-24-05-124, and subsection 4 of section 33-24-05-117.	[1]1
7. Changes in response action plan:	
a. Increase in action leakage rate	3
b. Change in a specific response reducing its frequency or effectiveness.	3
c. Other changes	2
Note: See subsection 7 of section 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
I. Enclosed Waste Piles. For all waste piles except those complying with subsection 3 of section 33-24-05-130, modifications are treated the same as for a landfill. The following modifications are applicable only to waste piles complying with subsection 3 of section 33-24-05-130.	
1. Modification or addition of waste pile units:	
a. Resulting in greater than 25% increase in the facility's waste pile storage or treatment capacity.	3
b. Resulting in up to 25% increase in the facility's waste pile storage or treatment capacity.	2
2. Modification of waste pile unit without increasing the capacity of the unit.	2

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Modifications	Class
3. Replacement of a waste pile unit with another waste pile unit of the same design and capacity and meeting all waste pile conditions in the permit.	1
4. Modification of a waste pile management practice.	2
5. Storage or treatment of different wastes in waste piles:	
a. That require additional or different management practices or different design of the unit.	3
b. That do not require additional or different management practices or different design of the unit.	2
Note: See subsection 7 of 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
6. Conversion of an enclosed waste pile to a containment building unit.	2
~~Note: See subsection 7 of 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.~~	
J. Landfills and Unenclosed Waste Piles	
1. Modification or addition of landfill units that result in increasing the facility's disposal capacity.	3
2. Replacement of a landfill.	3
3. Addition or modification of a liner, leachate collection system, leachate detection system, run-off control, or final cover system.	3
4. Modification of a landfill unit without changing a liner, leachate collection system, leachate detection system, run-off control, or final cover system.	2
5. Modification of a landfill management practice.	2
6. Landfill different wastes:	
a. That require additional or different management practices, different design of the liner, leachate collection system, or leachate detection system.	3
b. That do not require additional or different management practices, different design of the liner, leachate collection system, or leachate detection system.	2
c. That are wastes restricted from land disposal that meet the applicable treatment standards or that are treated to satisfy the standard of "use of practically available technology that yields the greatest environmental benefit" contained in 40 CFR 268.8(a)(2)(ii), and provided that the landfill unit meets the minimum technological requirements stated in subdivision b of subsection 8 of section 33-24-05-254. This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	1
d. That are residues from wastewater treatment or incineration, provided that disposal occurs in a landfill unit that meets the minimum technological requirements stated in subdivision b of subsection 8 of section 33-24-05-254, and provided further that the landfill has previously received wastes of the same type (for example, incinerator ash). This modification is not applicable to dioxin-containing wastes (F020, 021, 022, 023, 026, 027, and 028).	1
7. Modifications of unconstructed units to comply with subsection 3 of section 33-24-05-131, section 33-24-05-137, section 33-24-05-138, subsection 3 of section 33-24-05-132, subsection 3 of section 33-24-05-177, section 33-24-05-187, subsection 3 of section 33-24-05-178, and section 33-24-05-188.	[1]1
8. Changes in response action plan:	
a. Increase in action leakage rate	3
b. Change in a specific response reducing its frequency or effectiveness.	3
c. Other changes	2

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Modifications	Class
Note: See subsection 7 of section 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
K. Land Treatment	
1. Lateral expansion of or other modification of a land treatment unit to increase areal extent.	3
2. Modification of run-on control system.	2
3. Modify run-off control system.	3
4. Other modifications of land treatment unit component specifications or standards required in permit.	2
5. Management of different wastes in land treatment units:	
a. That require a change in permit operating conditions or unit design specifications.	3
b. That do not require a change in permit operating conditions or unit design specifications.	2
Note: See subsection 7 of section 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
6. Modification of a land treatment unit management practice to:	
a. Increase rate or change method of waste application.	3
b. Decrease rate of waste application.	1
7. Modification of a land treatment unit management practice to change measures of pH or moisture content, or to enhance microbial or chemical reactions.	2
8. Modification of a land treatment unit management practice to grow food chain crops, to add to or replace existing permitted crops with different food chain crops, or to modify operating plans for distribution of animal feeds resulting from such crops.	3
9. Modification of operating practice due to detection of releases from the land treatment unit pursuant to subdivision b of subsection 7 of section 33-24-05-165.	3
10. Changes in the unsaturated zone monitoring system, resulting in a change to the location, depth, number of sampling points, or replace unsaturated zone monitoring devices or components of devices with devices or components that have specifications different from permit requirements.	3
11. Changes in the unsaturated zone monitoring system that do not result in a change to the location, depth, number of sampling points, or that replace unsaturated zone monitoring devices or components of devices with devices or components having specifications different from permit requirements.	2
12. Changes in background values for hazardous constituents in soil and soil-pore liquid.	2
13. Changes in sampling, analysis, or statistical procedure.	2
14. Changes in land treatment demonstration program prior to or during the demonstration.	2
15. Changes in any condition specified in the permit for a land treatment unit to reflect results of the land treatment demonstration, provided performance standards are met, and the department's prior approval has been received.	[1]1
16. Changes to allow a second land treatment demonstration to be conducted when the results of the first demonstration have not shown the conditions under which the wastes can be treated completely, provided the conditions for the second demonstration are substantially the same as the conditions for the first demonstration and have received the prior approval of the department.	[1]1
17. Changes to allow a second land treatment demonstration to be conducted when the results of the first demonstration have not shown the conditions under which the wastes can be treated completely, where the conditions for the second demonstration are not substantially the same as the conditions for the first demonstration.	3
18. Changes in vegetative cover requirements for closure.	2

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Modifications	Class
L. Incinerators, Boilers, and Industrial Furnaces:	
1. Changes to increase by more than 25% any of the following limits authorized in the permit: A thermal feed rate limit, a feedstream feed rate limit, a chlorine/chloride feed rate limit, a metal feed rate limit, or an ash feed rate limit. The department will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.	3
2. Changes to increase by up to 25% any of the following limits authorized in the permit: A thermal feed rate limit, a feedstream feed rate limit, a chlorine/chloride feed rate limit, a metal feed rate limit, or an ash feed rate limit. The department will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.	2
3. Modification of an incinerator, boiler, or industrial furnace unit by changing the internal size or geometry of the primary or secondary combustion units, by adding a primary or secondary combustion unit, by substantially changing the design of any component used to remove hydrogen chloride and chlorine metals, or particulate from the combustion gases, or by changing other features of the incinerator, boiler, or industrial furnace that could affect its capability to meet the regulatory performance standards. The department will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.	3
4. Modification of an incinerator, boiler, or industrial furnace unit in a manner that would not likely affect the capability of the unit to meet the regulatory performance standards but which would change the operating conditions or monitoring requirements specified in the permit. The department may require a new trial burn to demonstrate compliance with the regulatory performance standards.	2
5. Operating requirements:	
a. Modification of the limits specified in the permit for minimum or maximum combustion gas temperature, minimum combustion gas residence time, oxygen concentration in the secondary combustion chamber, flue gas carbon monoxide and hydrocarbon concentration, maximum temperature at the inlet to the particulate matter emission control system, or operating parameters for the air pollution control system. The department will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.	3
b. Modification of any stack gas emission limits specified in the permit, or modification of any conditions in the permit concerning emergency shutdown or automatic waste feed cutoff procedures or controls.	3
c. Modification of any other operating condition or any inspection or recordkeeping requirement specified in the permit.	2
6. Burning different wastes:	
a. If the waste contains a POHC that is more difficult to burn than authorized by the permit or if burning of the waste requires compliance with different regulatory performance standards than specified in the permit. The department will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.	3
b. If the waste does not contain a POHC that is more difficult to burn than authorized by the permit and if burning of the waste does not require compliance with different regulatory performance standards than specified in the permit.	2
Note: See subsection 7 of section 33-24-06-14 for modification procedures to be used for the management of newly listed or identified wastes.	
7. Shakedown and trial burn:	
a. Modification of the trial burn plan or any of the permit conditions applicable during the shakedown period for determining operational readiness after construction, the trial burn period, or the period immediately following the trial burn.	2
b. Authorization of up to an additional 720 hours of waste burning during the shakedown period for determining operational readiness after construction, with the prior approval of the department.	[1]1

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Modifications	Class
c. Changes in the operating requirements set in the permit for conducting a trial burn, provided the change is minor and has received the prior approval of the department.	[1]1
d. Changes in the ranges of the operating requirements set in the permit to reflect the results of the trial burn, provided the change is minor and has received the prior approval of the department.	[1]1
8. Substitution of an alternative type of nonhazardous waste fuel that is not specified in the permit.	1
M. Containment Buildings.	
1. Modification or addition of containment building units:	
a. Resulting in greater than 25% increase in the facility's containment building storage or treatment capacity.	3
b. Resulting in up to 25% increase in the facility's containment building storage or treatment capacity.	2
2. Modification of a containment building unit or secondary containment system without increasing the capacity of the unit.	2
3. Replacement of a containment building with a containment building that meets the same design standards provided:	
a. The unit capacity is not increased.	1
b. The replacement containment building meets the same conditions in the permit.	1
4. Modification of a containment building management practice.	2
5. Storage or treatment of different wastes in containment buildings:	
a. That require additional or different management practices.	3
b. That do not require additional or different management practices.	2
N. Corrective Action:	
1. Approval of a corrective action management unit pursuant to section 33-24-05-552.	3
2. Approval of a temporary unit or time extension for a temporary unit pursuant to section 33-24-05-553.	2

FOOTNOTE: [1]Class 1 modifications requiring prior department approval.

CHAPTER 33-24-07
PERMITTING PROCEDURES

33-24-07-01. Purpose and scope. This chapter contains procedures for issuing, modifying, revoking and reissuing, or terminating all permits, other than "emergency permits" (see section 33-24-06-19) and "permits by rule" (see section 33-24-06-18). The latter kinds of permits are governed by chapter 33-24-06. Operating status prior to final administrative approval of the permit application is not a "permit" and is covered by specific provisions in chapter 33-24-06. The procedures of this chapter also apply to denial of a permit for the active life of a hazardous waste management facility or unit under subsection 2 of section 33-24-06-13.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 32-20.3-05

33-24-07-02. Application for a permit.

1. General requirements.

   a. Any person who requires a hazardous waste permit shall complete, sign, and submit to the department an application in accordance with chapter 33-24-06.

   b. The department shall not begin the processing of a permit until the applicant has fully complied with the application requirements for that permit. (See section 33-24-06-01.)

c. Permit applications must comply with the signature and certification requirements of section 33-24-06-03.

2. The department shall review for completeness every application for a hazardous waste permit. Each application for a permit submitted by a new hazardous waste management facility should be reviewed for completeness by the department within thirty days of its receipt. Each application for a permit submitted by an existing hazardous waste management facility (both parts A and B of the application) should be reviewed for completeness within sixty days of receipt. Upon completing the review, the department shall notify the applicant in writing whether the application is complete. If the application is incomplete, the department shall list the information necessary to make the application complete. When the application is for an existing hazardous waste management facility, the department shall specify in the notice of deficiency a date for submitting the necessary information. The department shall notify the applicant that the application is complete upon receiving this information. After the application is completed, the department may request additional information from an applicant, but only when necessary to clarify, modify, or supplement previously submitted material. Requests for such additional information will not render an application incomplete.

3. If an applicant fails or refuses to correct deficiencies in the application, the permit may be denied and appropriate enforcement actions may be taken under the applicable statutory provisions.

4. If the department decides that a site visit is necessary for any reason in conjunction with the processing of an application, it shall notify the applicant and a date shall be scheduled.

5. The effective date of an application is the date on which the department notifies the applicant that the application is complete as provided in subsection 2.

6. For each application from a major new hazardous waste management facility, the department shall, no later than the effective date of the application, prepare and mail to the applicant a project decision schedule. The schedule must specify target dates by which the department intends to:

   a. Prepare a draft permit;

   b. Give public notice;

   c. Complete the public comment period, including any public hearings; and

   d. Issue a final permit.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-03. Modification, revocation, and reissuance, or termination of permits.

1. Permits may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon the department's initiative. However, permits may only be modified, revoked and reissued, or terminated by the department for the reasons specified in section 33-24-06-12 or 33-24-06-13. All requests shall be in writing and shall contain facts or reasons supporting the request.

2. If the department decides the request is not justified, the department shall send the requester a brief written response giving a reason for the decision. Denials of requests for modification, revocation and reissuance, or termination are not subject to public notice, comments, or hearings. Denials by the department may be informally appealed to the department by letter briefly setting forth the relevant facts. The department may then begin modification, revocation and reissuance, or termination proceedings under subsection 3. The appeal shall be considered denied if the department takes no action on the letter within sixty days after receiving it.

3. Requirements to modify or revoke.

   a. If the department tentatively decides to modify, terminate, or revoke and reissue a permit under section 33-24-06-12 and subsection 3 of section 33-24-06-14, it shall prepare a draft permit under section 33-24-07-04 incorporating the proposed changes. The department may request additional information and, in the case of a modified permit, may require the submission of an updated permit application. In the case of revoked and reissued permits, the department shall require the submission of a new application.

   b. In a permit modification under this section, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit. When a permit is revoked and reissued under this section, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding, the permittee shall comply with all conditions of the existing permit until a new final permit is reissued.

   c. "Class 1 and 2 modifications" as defined in section 33-24-06-14 are not subject to the requirements of this section.

4. If the department tentatively decides to terminate a permit under section 33-24-06-13 it shall issue a notice of intent to terminate. A notice of intent to terminate is a type of draft permit which follows the same procedures as any draft permit prepared under section 33-24-07-04.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-04. Draft permits.

1. Once an application is complete, the department shall tentatively decide whether to prepare a draft permit or to deny the application.

2. If the department tentatively decides to deny the permit application, the department shall issue a notice of intent to deny. A notice of intent to deny the permit application is a type of draft permit which follows the same procedures as any draft permit prepared under this section. (See subsection 4.) If the department's final decision is that the tentative decision to deny the permit application was incorrect, the department shall withdraw the notice of intent to deny and proceed to prepare a draft permit under subsection 3.

3. If the department decides to prepare a draft permit, the department shall prepare a draft permit that contains the following information:

a. All conditions under sections 33-24-06-04 and 33-24-06-05.

b. All compliance schedules under section 33-24-06-07.

c. All monitoring requirements under section 33-24-06-08.

d. Standards for treatment, storage, and disposal and other permit conditions under section 33-24-06-04.

4. All draft permits prepared under this section shall be accompanied by a fact sheet (section 33-24-07-05), publicly noticed (section 33-24-07-06), and shall be made available for public comment (section 33-24-07-07). The department shall give notice of opportunity for a public hearing (section 33-24-07-08), issue a final decision (section 33-24-07-11) and respond to comments (section 33-24-07-13). An appeal may be taken under section 33-24-07-14.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-05. Fact sheet.

1. A fact sheet must be prepared for every draft permit for a major hazardous waste management facility or activity, and for every draft permit which the department finds is the subject of widespread public interest or raises major issues. The fact sheet must briefly set forth the principle facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. The department shall send this fact sheet to the applicant and, on request, to any other person.

2. The fact sheet shall include, when applicable:

   a. A brief description of the type of facility or activity which is the subject of the draft permit;

   b. The type and quantity of wastes, fluids, or pollutants which are proposed to be, or are being treated, stored, disposed of, injected, emitted, or discharged;

   c. A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions;

   d. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

   e. A description of the procedures for reaching a final decision on the draft permit including:

      (1) The beginning and ending dates of the comment period under section 33-24-07-06 and the address where comments will be received;

      (2) Procedures for requesting a hearing and the nature of that hearing; and

      (3) Any other procedures by which the public may participate in the final decision; and

   f. Name and telephone number of a person to contact for additional information.

History: Effective January 1, 1984; amended effective December 1, 1988; January 1, 1994.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-06. Public notice of permit actions and public comment period.

1. **Scope.**

   a. The department shall give public notice that the following actions have occurred:

      (1) A permit application has been tentatively denied under subsection 2 of section 33-24-07-04.

      (2) A draft permit has been prepared under subsection 3 of section 33-24-07-04.

      (3) A hearing has been scheduled under section 33-24-07-08.

      (4) An appeal has been granted under subsection 3 of section 33-24-07-14.

   b. No public notice is required when a request for permit modification, revocation and reissuance, or termination is denied under subsection 2 of section 33-24-07-03. Written notice of that denial must be given to the requester and to the permittee.

   c. Public notices may describe more than one permit or permit action.

2. **Timing.**

   a. Public notice of the preparation of a draft permit (including a notice of intent to deny a permit application) required under subsection 1 must allow at least forty-five days for public comment.

   b. Public notice of a public hearing shall be given at least thirty days before the hearing. (Public notice of the hearing may be given at the same time as public notice of the draft permit and the two notices may be combined.)

3. **Methods.** Public notice of activities described in subdivision a of subsection 1 must be given by the following methods:

   a. By mailing a copy of a notice to the following persons (any person otherwise entitled to receive notice under this subsection may waive that person's rights to receive notice for any classes and categories of permits):

      (1) The applicant.

      (2) Any other agency which the department knows has issued or is required to issue permits for the same facility or activity, including the environmental protection agency.

      (3) Federal and state agencies with jurisdiction over fish, shellfish, and wildlife resources, the advisory council on historic preservation, state historic preservation officers, and other appropriate government authorities, including other affected states.

(4) Persons on a mailing list developed by:

(a) Including those who request in writing to be on the list;

(b) Soliciting persons for "area lists" from participants in past permit proceedings in that area; and

(c) Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in such publications as regional and state funded newsletters, environmental bulletins, or state law journals. (The department may update the mailing list from time to time by requesting written indication of continued interest from those listed. The department may delete from the list the name of any person who fails to respond to such a request.)

b. This notice must comply with subsection 8 of North Dakota Century Code section 23-20.3-05, and must be in a manner constituting legal notice to the public under state law.

c. Any other method reasonably calculated to give actual notice of the action in question to the persons potentially affected by it, including press releases or any other form or medium to elicit public participation.

4. Contents.

a. **All public notices.** All public notices issued under this chapter must contain the following minimum information:

(1) Name and address of the office processing the permit action for which notice is being given.

(2) Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit.

(3) A brief description of the business conducted at the facility or activity described in the permit application or the draft permit.

(4) Name, address, and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit, fact sheet, and the application.

(5) A brief description of the comment procedures required by sections 33-24-07-07 and 33-24-07-08 and the time and place of any hearing that will be held, including a statement of procedures to request a hearing (unless a hearing has already been scheduled) and other procedures by which the public may participate in the final permit decision.

(6) Any additional information considered necessary or proper.

b. **Public notices for hearings.** In addition to the general public notice described in subdivision a, the public notice of a hearing under section 33-24-07-08, must contain the following information:

(1) Reference to the date of previous public notices relating to the permit.

(2) Date, time, and place of the hearing.

(3) A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

5. **Distribution of copies.** In addition to the general public notice described in subdivision a of subsection 4, all persons identified in paragraphs 1, 2, and 3 of subdivision a of subsection 3 must be mailed a copy of the fact sheet, the permit application (if any), and the draft permit (if any).

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-07. Public comments and requests for public hearings. During the public comment period provided under section 33-24-07-06, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled.

A request for a public hearing must be in writing and must state the nature of the issues proposed to be raised in the hearing. All comments shall be considered in making the final decision and must be answered as provided in section 33-24-07-13.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-08. Public hearings.

1. The department shall hold a public hearing:

   a. Whenever it finds, on the basis of requests, a significant degree of public interest in a draft permit;

   b. At its discretion, whenever for instance, such a hearing might clarify one or more issues involved in the permit decision; or

   c. Whenever it receives written notice of opposition to a draft permit and a request for a hearing within forty-five days of public notice under subdivision a of subsection 2 of section 33-24-07-06.

2. Whenever possible, the department shall schedule a hearing under this section at a location convenient to the nearest population center to the proposed facility.

3. Public notice of the hearing shall be given as specified in section 33-24-07-06.

4. Whenever a public hearing will be held, the department shall designate a presiding officer for the hearing who shall be responsible for its scheduling and orderly conduct.

5. Any person may submit oral or written statements and data concerning a draft permit. Reasonable limits may be set upon the time allowed for oral statements and the submission of statements in writing may be required. The public comment period under section 33-24-07-06 must automatically be extended to the close of any public hearing under this section. The hearing officer may also extend the comment period by so stating at the hearing.

6. A tape recording or written transcript of the hearing must be made available to the public.

History: Effective January 1, 1984; amended effective December 1, 1988.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-09. Obligation to raise issues and provide information during the public comment period. All persons, including applicants, who believe any condition of a draft permit is inappropriate or that the department's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, shall raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period (including any public hearing) under section 33-24-07-06. All supporting materials shall be included in full and may not be incorporated by reference, unless they consist of state or federal statutes or regulations, or other generally available reference materials. Commentors must make supporting material available to the department. (A comment period longer than thirty days will often be necessary in complicated proceedings to give commentors a reasonable opportunity to comply with the requirements of this section. Commentors may request longer comment periods and they should be freely established under section 33-24-07-06 to the extent that they appear necessary.)

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-10. Reopening of the public comment period.

1. If any data, information, or arguments submitted during the public comment period, including information or arguments required under section 33-24-07-09, appear to raise substantial new questions concerning a permit, the department may take one or more of the following actions:

   a. Prepare a new draft permit, appropriately modified, under section 33-24-07-04.

   b. Prepare a revised fact sheet under section 33-24-07-05 and reopen the comment period under section 33-24-07-10.

   c. Reopen or extend the comment period under section 33-24-07-06 to give interested persons an opportunity to comment on the information or arguments submitted.

2. Comments filed during the reopened comment period must be limited to the substantial new questions that caused its reopening. The public notice under section 33-24-07-06 defines the scope of the reopening.

3. Public notice of any of the above actions must be issued under section 33-24-07-06.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-11. Issuance and effective date of permit.

1. After the close of the public comment period under section 33-24-07-06 on a draft permit, the department shall issue a final permit decision (or a decision to deny a permit for the active life of a hazardous waste management facility or unit under subsection 2 of section 33-24-06-13). The department shall notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. This notice must include reference to the procedures for appealing a decision on a permit or a decision to terminate a permit. For the purposes of this section, a final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit.

2. A final permit decision (or a decision to deny a permit for the active life of a hazardous waste management facility or unit under subsection 2 of section 33-24-06-13) shall become effective thirty days after the service of notice of the decision under subsection 1, unless:

   a. A later effective date is specified in the decision;

   b. Review is requested under section 33-24-07-14; or

   c. No comments required a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

History: Effective January 1, 1984; amended effective December 1, 1991.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-12. Stays of contested permit conditions.

1. Stays.

   a. If a request for review of a permit under section 33-24-07-14 is granted, the effect of the contested permit conditions is stayed and is not subject to judicial review pending final department action. If the permit involves a new facility the applicant is without a permit for the proposed new facility pending final agency action.

   b. Uncontested conditions which are not severable from those contested must be stayed together with the contested conditions. Stayed provisions of permits for existing facilities must be identified by the department. All other provisions of the permit for the existing facility remain fully effective and enforceable.

2. Stays based on cross effects. A stay may be granted based on the grounds that an appeal to the department under section 33-24-07-14 of one permit may result in changes to another permit only when each of the permits involved has been appealed to the department and it has accepted each appeal.

3. Any facility or activity holding an existing permit shall:

   a. Comply with the conditions of that permit during any modification or revocation and reissuance proceedings under section 33-24-07-03; and

   b. To the extent conditions of any new permit are stayed under this section, comply with the conditions of the existing permit which corresponds to the stayed conditions, unless compliance with the existing conditions would be technologically incompatible with compliance with other conditions of the new permit which have not been stayed.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-13. Response to comments.

1. At the time that a final permit is issued under section 33-24-07-11, the department shall issue a response to comments. This response must:

   a. Specify which provisions, if any, of the draft permits have been changed in the final permit decision, and the reasons for the change; and

   b. Briefly describe and respond to all significant comments on the draft permit raised during the public comment period or during any hearing.

2. The response to comments must be available to the public.

History: Effective January 1, 1984.
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20-3-05

33-24-07-14. Appeal of permit.

1. Within thirty days after a final permit decision (or a decision under subsection 2 of section 33-24-06-13 to deny a permit for the active life of a hazardous waste management facility or unit) has been issued under section 33-24-07-11, any person who filed comments on that draft permit or participated in the public hearing may petition the department to review any condition of the permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition for administrative review only to the extent of the changes from the draft to the final permit decision. The thirty-day period within which a person may request review under this section begins with the service of notice of the department's action unless a later date is specified in that notice. The petition must include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these rules and, when appropriate, a showing that the condition in question is based on:

   a. A finding of fact or conclusion of law which is clearly erroneous; or

   b. An exercise or discretion or an important policy consideration which the department should, in its discretion, review.

2. The department may also decide on its initiative to review any condition of any permit issued under this article. The department must act under this section within thirty days of the service date of notice of the department's action.

3. Within a reasonable time following the filing of the petition for review, the department shall issue an order either granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final department action. Public notice of any grant of review by the department under subsection 1 or 2 must be given as provided in section

33-24-07-06. Public notice must set forth a briefing schedule for the appeal and must state that any interested person may file an amicus brief. Notice of denial of review may be sent only to the persons requesting review.

4. Final department action occurs when a final permit is issued or denied by the department and the department review procedures are exhausted. A final permit decision must be issued by the department:

   a. When the department issues notice to the parties that review has been denied.

   b. When the department issues a decision on the merits of the appeal and the decision does not include a remand of the proceedings; or upon the completion of remand proceedings if the proceedings are remanded, unless the department remand order specifically provides that appeal of the remand decision will be required to exhaust administrative remedies.

History: Effective December 1, 1991
General Authority: NDCC 23-20.3-03
Law Implemented: NDCC 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-15 [Reserved]

33-24-07-16 [Reserved]

33-24-07-17 [Reserved]

33-24-07-18 [Reserved]

33-24-07-19 [Reserved]

33-24-07-20 [Reserved]

33-24-07-21 [Reserved]

33-24-07-22 [Reserved]

33-24-07-23 [Reserved]

33-24-07-24 [Reserved]

33-24-07-25. Preapplication public meeting and notice.

1. Applicability. The requirements of this section apply to all hazardous waste part B applications seeking initial permits for hazardous waste management units. The requirements of this section also apply to hazardous waste part B applications seeking renewal of permits for such units, where the renewal application is proposing a significant change in facility operations. For the purposes of this section, a "significant change" is any change that would qualify as a class 3 permit modification under section 33-24-06-14. The requirements of this section do not apply to permit modifications under section 33-24-06-14 or to applications that are submitted for the sole purpose of conducting postclosure activities or postclosure activities and corrective action at a facility.

2. Prior to the submission of a part B hazardous waste permit application for a facility, the applicant must hold at least one meeting with the public in order to solicit questions from the community and inform the community of proposed hazardous waste management activities. The applicant shall post a

sign-in sheet or otherwise provide a voluntary opportunity for attendees to provide their names and addresses.

3. The applicant shall submit a summary of the meeting, along with the list of attendees and their addresses developed under subsection 2, and copies of any written comments or materials submitted at the meeting, to the department as a part of the part B application, in accordance with subsection 2 of section 33-24-06-14.

4. The applicant shall provide public notice of the preapplication meeting at least thirty days prior to the meeting. The applicant shall maintain, and provide to the department upon request, documentation of the notice.

   a. The applicant shall provide public notice in all of the following forms:

      (1) A newspaper advertisement. The applicant shall publish a notice, fulfilling the requirements in subdivision b, in a newspaper of general circulation in the county or equivalent jurisdiction that hosts the proposed location of the facility. In addition, the department shall instruct the applicant to publish the notice in newspapers of general circulation in adjacent counties or equivalent jurisdictions, where the department determines that such publication is necessary to inform the affected public. The notice must be published as a display advertisement.

      (2) A visible and accessible sign. The applicant shall post a notice on a clearly marked sign at or near the facility, fulfilling the requirements in subdivision b. If the applicant places the sign on the facility property, then the sign must be large enough to be readable from the nearest point where the public would pass by the site.

      (3) A broadcast media announcement. The applicant shall broadcast a notice, fulfilling the requirements in subdivision 2 of subsection b, at least once on at least one local radio station or television station. The applicant may employ another medium with prior approval of the department.

      (4) A notice to the department. The applicant shall send a copy of the newspaper notice to the department and to the appropriate units of state and local government, in accordance with subdivision b of subsection 3 of section 33-24-07-06.

   b. The notices required under subdivision a must include:

      (1) The date, time, and location of the meeting;

      (2) A brief description of the purpose of the meeting;

      (3) A brief description of the facility and proposed operations, including the address or a map (for example, a sketched or copied street map) of the facility location;

      (4) A statement encouraging people to contact the facility at least seventy-two hours before the meeting if they need special access to participate in the meeting; and

      (5) The name, address, and telephone number of a contact person for the applicant.

History: Effective July 1, 1997
General Authority: 23-20.3-03
Law Implemented: 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-26. Public notice requirements at the application stage.

1. Applicability. The requirements of this section apply to all hazardous waste part B applications seeking initial permits for hazardous waste management units. The requirements of this section also apply to hazardous waste part B applications seeking renewal of permits for such units under section 33-24-06-02. The requirements of this section do not apply to permit modifications under section 33-24-06-14 or permit applications submitted for the sole purpose of conducting postclosure activities or postclosure activities and corrective action at a facility.

2. Notification at application submittal.

   a. The department shall provide public notice as set forth in subdivision a of subsection 3 of section 33-24-07-06, and notice to appropriate units of state and local government as set forth in subdivision b of subsection 3 of section 33-24-07-06, that a part B permit application has been submitted to the department and is available for review.

   b. The notice shall be published within a reasonable period of time after the application is received by the department. The notice must include:

      (1) The name and telephone number of the applicant's contact person;

      (2) The name and telephone number of the department's contact office, and a mailing address to which information, opinions, and inquiries may be directed throughout the permit review process;

      (3) An address to which people can write in order to be put on the facility mailing list;

      (4) The location where copies of the permit application and any supporting documents can be viewed and copied;

      (5) A brief description of the facility and proposed operations, including the address or a map (for example, a sketched or copied street map) of the facility location on the front page of the notice; and

      (6) The date that the application was submitted.

3. Concurrent with the notice required under subsection 2, the department must place the permit application and any supporting documents in a location accessible to the public in the vicinity of the facility or at the department's office.

History: Effective July 1, 1997
General Authority: 23-20.3-03
Law Implemented: 23-20.3-03, 23-20.3-04, 23-20.3-05

33-24-07-27. Information repository.

1. Applicability. The requirements of this section apply to all applications seeking hazardous waste permits for hazardous waste management units.

2. The department may assess the need, on a case-by-case basis, for an information repository. When assessing the need for an information repository, the department shall consider a variety of factors, including the level of public interest; the type of facility; the presence of an existing repository; and the proximity to the nearest copy of the administrative record. If the department determines, at any time after submittal of a permit application, that there is a need for a repository, then the department shall notify the facility that it must establish and maintain an information repository. (See subsection 13 of section 33-24-06-04 for similar provisions relating to the information repository during the life of a permit.)

3. The information repository shall contain all documents, reports, data, and information deemed necessary by the department to fulfill the purposes for which the repository is established. The department may limit the contents of the repository.

4. The information repository mustbe located and maintained at a site chosen by the facility. If the department finds the site unsuitable for the purposes and persons for which it was established, due to problems with the location, hours of availability, access, or other relevant considerations, then the department shall specify a more appropriate site.

5. The department shall specify requirements for informing the public about the information repository. At a minimum, the department shall require the facility to provide a written notice about the information repository to all individuals on the facility mailing list.

6. The facility owner or operator shall be responsible for maintaining and updating the repository with appropriate information throughout a time period specified by the department. The department may close the repository at its discretion, based on the factors in subsection 2.

History: Effective July 1, 1997.
General Authority: 23-20.3-03
Law Implemented: 23-20.3-03, 23-20.3-04, 23-20.3-05