NORTH DAKOTA ADMINISTRATIVE CODE

VOLUME 1

DEPARTMENT OF HEALTH AND CONSOLIDATED LABORATORIES

Supplement 132 - June 1990

Prepared by the Legislative Council staff
for the
Administrative Rules Committee

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CHAPTER 33-15-01
GENERAL PROVISIONS

Section

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33-15-01-01. Purpose. It is the purpose of these air quality standards and emission regulations to state such requirements as shall be required to achieve and maintain the best air quality possible, consistent with the best available control technology, to protect human health, welfare, and property to prevent injury to plant and animal life, to promote the economic and social development of this state, to foster the comfort and convenience for the people, and to facilitate the enjoyment of the natural attractions of this state.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-01.1

33-15-01-02. Scope. These air quality standards and emission regulations apply to any source or emission existing partially or wholly within North Dakota.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-03. Authority. The North Dakota state department of health and consolidated laboratories has been authorized to provide and administer this article under the provisions of North Dakota Century Code chapter 23-25.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-04. Definitions. As used in this article, except as otherwise specifically provided or where the context indicates otherwise, the following words shall have the meanings ascribed to them in this section:

1. "Act" means North Dakota Century Code chapter 23-25.
2. "Air contaminant" means any solid, liquid, gas, or odorous substance or any combination thereof.
3. "Air pollution" means the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as is or may be injurious to human health, welfare, or property, animal or plant life, or which unreasonably interferes with the enjoyment of life or property.
4. "Ambient air" means the surrounding outside air.
5. "ASME" means the American society of mechanical engineers.
6. "Control equipment" means any device or contrivance which prevents or reduces emissions.
7. "Department" means the North Dakota state department of health and consolidated laboratories.
8. "Emission" means a release of air contaminants into the ambient air.
9. "Existing" means equipment, machines, devices, articles, contrivances, or installations which are in being on or before July 1, 1970, unless specifically designated within this article; except that any existing equipment, machine, device, contrivance, or installation which is altered, repaired, or rebuilt after July 1, 1970, must be reclassified as "new" if such alternation, rebuilding, or repair results in the emission of an additional or greater amount of air contaminants.
10. "Fuel burning equipment" means any furnace, boiler apparatus, stack, or appurtenances thereto used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer.

11. "Fugitive emissions" means solid airborne particulate matter, fumes, gases, mist, smoke, odorous matter, vapors, or any combination thereof generated incidental to an operation process procedure or emitted from any source other than through a well-defined stack or chimney.

12. "Garbage" means putrescible animal and vegetable wastes resulting from the handling, preparation, cooking, and consumption of food, including wastes from markets, storage facilities, handling, and sale of produce and other food products.

13. "Heat input" means the aggregate heat content of all fuels whose products of combustion pass through a stack or stacks. The heat input value to be used shall be the equipment manufacturer's or designer's guaranteed maximum input, whichever is greater.

14. "Incinerator" means any article, machine, equipment, device, contrivance, structure, or part of a structure used for the destruction of garbage, rubbish, or other wastes by burning or to process salvageable material by burning.

15. "Inhalable particulate matter" means particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers. Also known as PM_{10}.

16. "Installation" means any property, real or personal, including, but not limited to, processing equipment, manufacturing equipment, fuel burning equipment, incinerators, or any other equipment, or construction, capable of creating or causing emissions.

17. "Multiple chamber incinerator" means any article, machine, equipment, contrivance, structure, or part of a structure used to dispose of combustible refuse by burning, consisting of three or more refractory lined combustion furnaces in series physically separated by refractory walls, interconnected by gas passage ports or ducts and employing adequate parameters necessary for maximum combustion of the material to be burned.

18. "New" means equipment, machines, devices, articles, contrivances, or installations built or installed on or after July 1, 1970, unless specifically designated within this article, and installations existing at said stated time which are later altered, repaired, or rebuilt and result in the emission of an additional or greater amount of air contaminants.

19. "Opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

20. "Open burning" means the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the ambient air without passing through an adequate stack, duct, or chimney.

21. "Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than one hundred micrometers.

22. "Particulate matter emissions" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air.

23. "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this state, any other state or political subdivision or agency thereof and any legal successor, representative agent, or agency of the foregoing.

24. "Pesticide" includes (a) any agent, substance, or mixture of substances intended to prevent, destroy, control, or mitigate any insect, rodent, nematode, predatory animal, snail, slug, bacterium, weed, and any other form of plant or animal life, fungus, or virus, that may infect or be detrimental to persons, vegetation, crops, animals, structures, or households or be present in any environment or which the department may declare to be a pest, except those bacteria, fungi, protozoa, or viruses on or in living man or other animals; (b) any agent, substance, or mixture of substances intended to be used as a plant regulator, defoliant, or desiccant; and (c) any other similar substance so designated by the department, including herbicides, insecticides, fungicides, nematocides, molluscacides, rodenticides, lampreycides, plant regulators, gametocides, post-harvest decay preventatives, and antioxidants.

25. "PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers.

26. "PM_{10} emissions" means finely divided solid or liquid material with an aerodynamic diameter less than or equal to a nominal ten micrometers emitted to the ambient air.

27. "Premises" means any property, piece of land or real estate, or building.

28. "Process weight" means the total weight of all materials introduced into any specific process which may cause

emissions. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustion air will not.

29. "Process weight rate" means the rate established as follows:

    a. For continuous or longrun steady state operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.

    b. For cyclical or batch operations, the total process weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such a period. Where the nature of any process or operation or the design of any equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

30. "Public nuisance" means any condition of the ambient air beyond the property line of the offending person which is ~~injurious to health, or~~ offensive to the senses, or which causes or constitutes an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

31. "Refuse" means any combustible waste material, trade waste, rubbish, or garbage containing carbon in a free or combined state.

32. "Rubbish" means nonputrescible solid wastes consisting of both combustible and noncombustible wastes. Combustible rubbish includes paper, rags, cartons, wood, furniture, rubber, plastics, yard trimmings, leaves, and similar materials. Noncombustible rubbish includes glass, crockery, cans, dust, metal furniture and like materials which will not burn at ordinary incinerator temperatures (one thousand six hundred to one thousand eight hundred degrees Fahrenheit [1144 degrees Kelvin to 1255 degrees Kelvin]).

33. "Salvage operation" means any operation conducted in whole or in part for the salvaging or reclaiming of any product or material.

34. "Smoke" means small gasborne particles resulting from incomplete combustion, consisting predominantly, but not exclusively, of carbon, ash, and other combustible material, that form a visible plume in the air.

35. "Source" means any property, real or personal, or person contributing to air pollution.

36. "Source operation" means the last operation preceding emission which operation (a) results in the separation of the air contaminant from the process materials or in the conversion of the process materials into air contaminants, as in the case of combustion fuel; and (b) is not an air pollution abatement operation.

37. "Stack or chimney" means any flue, conduit, or duct arranged to conduct emissions.

38. "Submerged fill pipe" means any fill pipe the discharge opening of which is entirely submerged when the liquid level is six inches [15.24 centimeters] above the bottom of the tank; or when applied to a tank which is loaded from the side, means any fill pipe the discharge opening of which is entirely submerged when the liquid level is one and one-half times the fill pipe diameter in inches [centimeters] above the bottom of the tank.

39. "Standard conditions" means a dry gas temperature of sixty-eight degrees Fahrenheit [293 degrees Kelvin] and a gas pressure of fourteen and seven-tenths pounds per square inch absolute [101.3 kilopascals].

40. "Trade waste" means solid, liquid, or gaseous waste material resulting from construction or the conduct of any business, trade, or industry, or any demolition operation, including, but not limited to, wood, wood containing preservatives, plastics, cartons, grease, oil, chemicals, and cinders.

41. "Volatile organic compounds" means any compound containing carbon and hydrogen or containing carbon and hydrogen in combination with any other element which has a modified Reid vapor pressure of one and one-half pounds per square inch absolute [10.3 kilopascals] or greater under actual storage conditions.

42. "Waste classification" means the seven classifications of waste as defined by the incinerator institute of America and American society of mechanical engineers.

History: Amended effective October 1, 1987; January 1, 1989; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-05. **Abbreviations.** The abbreviations used in this article have the following meanings:

A - ampere
A.S.T.M. - American Society for Testing and Materials
Btu - British thermal unit
°C - degree Celsius (centigrade)
cal - calorie
CdS - cadmium sulfide
cfm - cubic feet per minute
CFR - Code of federal regulations
cu ft - cubic feet
CO - carbon monoxide
CO_2 - carbon dioxide
dcf - dry cubic feet
dcm - dry cubic meter
dscf - dry cubic feet at standard conditions
dscm - dry cubic meter at standard conditions
eq - equivalents
°F - degree Fahrenheit
ft - feet
g - gram
gal - gallon
g eq - gram equivalents
gr - grain
hr - hour
HCl - hydrochloric acid
Hg - mercury
H_2O - water
H_2S - hydrogen sulfide
H_2SO_4 - sulfuric acid
Hz - hertz
in. - inch
j - joule
°K - degree Kelvin
k - 1,000
kg - kilogram
l - liter
lpm - liter per minute
lb - pound
m - meter
m^3 - cubic meter
meq - milliequivalent
min - minute
mg - milligram - 10^{-3} gram
Mg - megagram - 10^{6} gram
ml - milliliter - 10^{-3} liter
mm - millimeter - 10^{-3} meter
mol - mole
mol.wt. - molecular weight
mV - millivolt
N_2 - nitrogen
N - newton
ng - nanogram - 10^{-9} gram
nm - nanometer - 10^{-9} meter
NO - nitric oxide
NO_2 - nitrogen dioxide

NO_x - nitrogen oxides
O_2 - oxygen
Pa - pascal
PM_{10} - particulate matter with an aerodynamic diameter $<$ 10 μ
ppb - parts per billion
ppm - parts per million
psia - pounds per square inch absolute
psig - pounds per square inch gauge
°R - degree Rankine
s-sec - second
scf - cubic feet at standard conditions
scfh - cubic feet per hour at standard conditions
scm - cubic meters at standard conditions
scmh - cubic meters per hour at standard conditions
SO_2 - sulfur dioxide
SO_3 - sulfur trioxide
SO_x - sulfur oxides
sq ft - square feet
std - at standard conditions
TSP - total suspended particulate
μg - microgram - 10^{-6} gram
V - volt
W - watt
Ω - ohm

History: Amended effective January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-06. Entry onto premises - authority. Entry onto premises and onsite inspection shall be made pursuant to North Dakota Century Code section 23-25-05.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-05

33-15-01-07. Variances.

1. Where upon written application of the responsible person or persons the department finds that by reason of exceptional circumstances strict conformity with any provisions of this article would cause undue hardship, would be unreasonable, impractical, or not feasible under the circumstances, the department may permit a variance from this article upon such conditions and within such time limitations as it may prescribe for prevention, control, or abatement of air pollution in harmony with the intent of the state and any applicable federal laws.

2. No variance may permit or authorize the creation or ~~maintenance~~ continuation of a public nuisance, or a danger to public health or safety.

HISTORY: Amended effective June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-08. Circumvention. No person shall cause or permit the installation or use of any device ~~of~~ or any means which~~, without resulting in reduction in the total amount of air contaminant emitted,~~ conceals or dilutes an emission of air contaminant which would otherwise violate this article.

HISTORY: Amended effective June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-09. Severability. If any provision of this article or the application thereof to any person or circumstances is held to be invalid, such invalidity shall not affect other provisions or application of any other part of this article which can be given effect without the invalid provision or application, and to this end the provisions of this article and the various applications thereof are declared to be severable.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-10. Land use plans and zoning regulations.

1. **Planning agency land use plans.**

   a. The department will provide to planning agencies, for use in preparing land use plans, information concerning:

      (1) Air quality.

      (2) Air pollutant emissions.

      (3) Air pollutant meteorology.

      (4) Air quality goals.

      (5) Air pollution effects.

   b. The department will review all land use plans and prepare recommendations for consideration in the plan adoption process.

2. **Zoning agency regulations.**

   a. The department will provide to zoning control agencies, for use in preparing regulations, information concerning:

      (1) Air quality.

      (2) Air pollutant emissions.

      (3) Air pollution meteorology.

      (4) Air quality goals.

      (5) Air pollution effects.

   b. The department will review all zoning regulations and prepare recommendations for consideration in the regulation adoption process.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-11. **(RESERVED)**

33-15-01-12. **Measurement of emissions of air contaminants.**

1. Sampling and testing methods. All tests shall be made and the results calculated in accordance with test procedures approved by the department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the department.

2. Responsible persons to have tests made. The department may require any person responsible for emission of air contaminants to make or have made tests to determine the emission of air contaminants from any source, whenever the department has reason to believe that an emission in excess of that allowed by this article is occurring. The department may specify testing methods to be used in accordance with good professional practice. The department may observe the testing. All tests shall be conducted by reputable, qualified personnel. The department shall be given a copy of the test results in writing and signed by the person responsible for the tests.

3. **The department may make tests.** The department may conduct tests of emissions of air contaminants from any source. Upon request of the department, the person responsible for the source to be tested shall provide

necessary holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices as may be necessary for proper determination of the emission of air contaminants.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-13. Shutdown and malfunction of an installation - requirement for notification.

1. **Maintenance shutdowns.** In the case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the department at least twenty-four hours prior to the planned shutdown provided that the air contaminating source will be operated while the control equipment is not in service. Such prior notice shall include the following:
   a. Identification of the specific facility to be taken out of service as well as its location and permit number.

   b. The expected length of time that the air pollution control equipment will be out of service.

   c. The nature and estimated quantity of emissions of air pollutants likely to be emitted during the shutdown period.

   d. Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period.

   e. The reasons that it would be impossible or impractical to shutdown the source operation during the maintenance period.

2. **Malfunctions.**

   a. When a malfunction in any installation occurs that can be expected to last longer than twenty-four hours and cause the emission of air contaminants in violation of this article or other applicable rules and regulations, the person responsible for such installation shall notify the department of such malfunction as soon as possible during normal working hours. The notification must contain a statement giving all pertinent facts, including the estimated duration of the breakdown. On receipt of this notification, the department may permit the continuance of the operation for a period not to exceed ten days provided that written application is made to the department. Such application shall be made within twenty-four hours of the malfunction or within such other time period as the department may specify. In cases of major equipment failure, additional time period may be granted by the department provided a corrective program has been submitted by the person and approved by the department. The department shall be notified when the condition causing the malfunction has been corrected.

b. Immediate notification to the department is required for any malfunction that would threaten health or welfare, or pose an imminent danger. During normal working hours the department can be contacted at 701-224-2348. After hours the department can be contacted through the twenty-four-hour state radio emergency number 1-800-472-2121. If calling from out of state, the twenty-four-hour number is 701-224-2121.

3. **Continuous emission monitoring system failures.** When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the department, for measuring or estimating emissions must be undertaken as soon as possible. Timely repair of the emission monitoring system must be made.

History: Amended effective October 1, 1987; January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-14. **Time schedule for compliance.** Except as otherwise specified, compliance with the provisions of this article shall be according to the following time schedule:

1. **New installations.** Every new installation shall comply as of going into continuous routine operation for its intended purpose.

2. **Existing installations.** Every existing installation shall be in compliance as of July 1, 1970, unless the owner or person responsible for the operation of the installation shall have submitted to the department in a form and manner satisfactory to it, a program and schedule for achieving compliance, such program and schedule to contain a date on or before which full compliance will be attained, and such other information as the department may require. If approved by the department, such date will be the date on which the

person shall comply. The department may require persons submitting such program to submit subsequent periodic reports on progress in achieving compliance.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-15. Prohibition of air pollution.

1. No person shall permit or cause air pollution, as defined in subsection 3 of section 33-15-01-04.

2. No person shall permit or cause a public nuisance, as defined in subsection ~~26~~ 30 of section 33-15-01-04.

3. No person shall cause or permit the discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any person or to the public or which endanger the comfort, repose, health, or safety of any such person or the public or which cause injury or damage to business or property.

4. Nothing in any other part of this article concerning emission of air contaminants or any other regulation relating to air pollution shall in any manner be construed as authorizing or legalizing the creation or maintenance of air pollution, a public nuisance, or a nuisance as described in subsection 3.

HISTORY: Amended effective June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-01-16. Confidentiality of records.

1. **Public inspection.** Any record, report, or information obtained or submitted pursuant to this article will be available to the public for inspection and copying during normal working hours unless the department certifies that the information is confidential. Anyone requesting department assistance in collecting, copying, certifying, or mailing public information must tender, in advance, the reasonable cost of those services.

2. **Information submitted as trade secrets.** The department may certify records, reports, or information, or particular part thereof, other than emission data, as confidential upon a showing that the information would, if made public, divulge methods or processes entitled to protection as trade secrets. Any person submitting

trade secret information must present the information to the department in a sealed envelope marked "CONFIDENTIAL". Each page of any document claimed confidential must be clearly marked with the word "CONFIDENTIAL". The submission must contain two parts:

a. The material claimed to contain trade secret information; and

b. A request for confidential treatment including:

    (1) All information for which no claim is being made;

    (2) An affidavit stating how and why the information fulfills the conditions of confidentiality under this subsection; and

    (3) An index to and summary of the information submitted which is suitable for release to the public.

3. **Accepted trade secret claims.** All information which meets the test of subsection 2 must be marked by the department as "ACCEPTED" and protected as confidential information.

4. **Rejected trade secret claims.** If the department determines that information submitted pursuant to subsection 2 does not meet the criteria of that subsection for confidential treatment, the department shall promptly notify the person submitting the information of that determination. The department shall in that event give that person at least twenty days in which to:

    a. Accept the determination of the department;

    b. Request that the information be returned to the person;

    c. Further justify the contention that the information deserves protection as a trade secret; or

    d. Further limit the scope of information for which a claim of confidentiality is made.

    If the person who submitted the information fails within the time period allowed by the department to demonstrate satisfactorily to the department that the information in the form presented qualifies for confidential treatment, the department shall promptly notify that person of that determination. If the person submitting the information did not request that it be returned, the department shall mark the information "REJECTED" and treat it as public information. The department's action on a reconsideration constitutes final agency action for purposes of judicial review. Appeal of this action must be to an appropriate district court.

5. **Appeal of nondisclosure claims.** Any person who identifies and tenders the reasonable cost of collecting, copying, certifying, and mailing particular information held by the department under subsection 2 may file with the department a petition for reconsideration stating how and why the public's interest would be better served by the release of the requested information than by its retention as confidential by the department. The department shall then reconsider the confidential status of the information. The department action on a petition for reconsideration constitutes final agency action for purposes of judicial review. Appeal of the department's action must be to an appropriate district court.

6. **Retention of confidential information.** All information which is accepted by the department as confidential must be stored in locked filing cabinets. Only those personnel of the department specifically designated by the department shall have access to the information contained therein. The department may not designate any person to have access to confidential information unless that person requires such access in order to carry out that person's responsibilities and duties. No person may disclose any confidential information except in accordance with the provisions of this section. No copies may be made except as strictly necessary for internal department use or as specified in subsection 8.

7. **Maintenance of log.** Persons designated by the department to maintain confidential files as herein provided shall maintain a log showing the persons who have had access to the confidential files and the date of such access.

8. **Transmittals of confidential information.** As necessary, confidential information acquired by the department under the provisions of the act, or this article, may be transmitted to such federal, state, or local agencies, when necessary for purposes of administration of any federal, state, or local air pollution control laws, which make an adequate showing of need to the department, provided that such transmittal is made under a continuing assurance of confidentiality.

9. **Relationship to issuance of permits.** The department may not process any application for a permit to construct or operate pursuant to chapter 33-15-14 or 33-15-15 until

final agency action on confidential trade secret claims has been completed.

History: Effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-06

33-15-01-17. Enforcement. Enforcement action will be consistent with procedures as approved by the United States environmental protection agency.

History: Effective June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-10

CHAPTER 33-15-02
AMBIENT AIR QUALITY STANDARDS

Section

33-15-02-01 Scope
33-15-02-02 Purpose
33-15-02-03 Air Quality Guidelines
33-15-02-04 Ambient Air Quality Standards
33-15-02-05 Methods of Sampling and Analysis
33-15-02-06 Reference Conditions
33-15-02-07 Concentrations of Air Contaminants in the Ambient Air Restricted

33-15-02-01. Scope. The ambient air quality standards as presented in this chapter pertain to the ambient air within the boundaries of North Dakota.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-02-02. Purpose. It is the purpose of these air quality standards to set forth levels of air quality for the maintenance of public health and welfare and to provide guidance to governmental and other parties interested in abating air pollution. Since the ambient air in North Dakota is generally cleaner than these standards, the standards are not a permit for the unnecessary degradation of air quality.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-02-03. Air quality guidelines. In keeping with the purpose of these ambient air quality standards, the quality should be such that:

1. The public health will be protected including sensitive or susceptible segments of the population.

2. Concentrations of pollutants will not cause public nuisance or annoyance.

3. Agricultural crops, animals, forest, and other plant life will be protected.

4. Visibility will be protected.

5. Metals or other materials will be protected from abnormal corrosion or damage.

6. Fabrics will not be soiled, deteriorated, or their colors affected.

7. Natural scenery will not be obscured.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-02-04. Ambient air quality standards.

1. **Particulates and gases.** The standards of ambient air quality listed in Table 1 define the limits of air contamination by particulates and gases. Any air contaminant which exceeds these limits is hereby declared to be unacceptable and requires air pollution control measures. The stated limits include normal background levels of particulates and gases.

2. **Radioactive substances.** The ambient air shall not contain any radioactive substances exceeding the concentrations specified in article 33-10.

3. **Other air contaminants.** The ambient air shall not contain air contaminants in concentrations that would be injurious to human health or well-being or unreasonably interfere with the enjoyment of property or that would injure plant or animal life. The department may establish, on a case-by-case basis, specific limits of concentration for these contaminants.

History: Amended effective October 1, 1987, January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-02-05. Methods of sampling and analysis. Air contaminants listed in Table 1 shall be measured by the method or methods listed in title 40, Code of Federal Regulations parts 50 and 53. Hydrogen sulfide sampling equipment and methods must be approved by the Department. Hydrogen sulfide analyzers must be designed for use as ambient air quality monitors and must be capable of meeting performance specifications as determined by the department.

The sampling and analytical procedures employed and the number, duration, and location of samples to be taken to measure ambient levels of air contaminants shall be consistent with obtaining results which are precise, accurate, and representative of the conditions being evaluated.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-02-06. Reference conditions. The standards of ambient air quality listed in Table 1 are corrected to a reference temperature of twenty-five degrees Celsius [298 degrees Kelvin] and a reference pressure of seven hundred sixty millimeters of mercury [101.3 kilopascals].

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-02-07. Concentrations of air contaminants in the ambient air restricted.

1. No person may cause or permit the emission of contaminants to the ambient air from any source in such a manner and amount that exceeds, at any place beyond the premises on which the source is located, those standards stated in section 33-15-02-04.

2. Nothing in any other part or section of this article may in any manner be construed as authorizing or legalizing the emission of air contaminants in such manner as prohibited in subsection 1.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

Table 1. AMBIENT AIR QUALITY STANDARDS

Air Contaminants		Standards (Maximum Permissible Concentrations)
Particulates Inhalable Particulate (PM_{10})	50	micrograms per cubic meter of air, expected annual arithmetic mean
	150	micrograms per cubic meter of air, maximum 24-hour average concentration with no more than one expected exceedance per year
~~Sulfur Oxides~~ Sulfur Dioxide	~~60~~	~~micrograms per cubic meter of air (0.023 ppm), maximum annual arithmetic mean~~
	~~260~~	~~micrograms per cubic meter of air (0.099 ppm), maximum 24-hour concentration~~
	~~715~~	~~micrograms per cubic meter of air (0.273 ppm), maximum 1-hour concentration~~
	0.023	parts per million (60 micrograms per cubic meter of air), maximum annual arithmetic mean concentration
	0.099	parts per million (260 micrograms per cubic meter of air), maximum 24-hour average concentration
	0.273	parts per million (715 micrograms per cubic meter of air), maximum 1-hour average concentration
Hydrogen Sulfide	~~70~~	~~micrograms per cubic meter of air (0.050 ppm), maximum 1-hour concentration not to be exceeded more than once per year~~
	10.0	parts per million (14 milligrams per cubic meter of air), maximum instantaneous (ceiling) concentration not to be exceeded
	0.20	parts per million (280 micrograms per cubic meter of air), maximum 1-hour average concentration not to be exceeded more than once per month
	0.10	parts per million (140 micrograms per cubic meter of air), maximum 24-hour average concentration not to be exceeded more than once per year
	0.02	parts per million (28 micrograms

		per cubic meter of air), maximum arithmetic mean concentration averaged over three consecutive months
Carbon Monoxide	~~10~~	~~milligrams per cubic meter of air (9 ppm), maximum 8-hour concentration not to be exceeded more than once per year~~
	~~40~~	~~milligrams per cubic meter of air (35 ppm), maximum 1-hour concentration not to be exceeded more than once per year~~
	9	parts per million (10 milligrams per cubic meter of air), maximum 8-hour concentration not to be exceeded more than once per year
	35	parts per million (40 milligrams per cubic meter of air), maximum 1-hour concentration not to be exceeded more than once per year
Ozone	~~235~~	~~micrograms per cubic meter of air (0.12 ppm), maximum 1-hour concentration not to be exceeded more than once per year~~
	0.12	parts per million (235 micrograms per cubic meter of air), maximum 1-hour concentration not to be exceeded more than once per year
Nitrogen Dioxide	~~100~~	~~micrograms per cubic meter of air (0.05 ppm), maximum annual arithmetic mean~~
	~~200~~	~~micrograms per cubic meter of air (0.1 ppm), maximum 1-hour concentration not to be exceeded over 1 percent of the time in any calendar quarter~~
	0.05	parts per million (100 micrograms per cubic meter of air), maximum annual arithmetic mean
	0.1	parts per million (200 micrograms per cubic meter of air), maximum 1-hour concentration not to be exceeded over 1 percent of the time in any calendar quarter
Lead	1.5	micrograms per cubic meter of air, maximum arithmetic mean averaged over a calendar quarter

Table 2. METHODS OF AIR CONTAMINANT MEASUREMENT

[Repealed effective October 1, 1987]

CHAPTER 33-15-05
EMISSIONS OF PARTICULATE MATTER RESTRICTED

Section

33-15-05-01	Restriction of Emission of Particulate Matter From Industrial Processes
33-15-05-02	Maximum Allowable Emission of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating
33-15-05-03	Incinerators
33-15-05-04	Methods of Measurement

33-15-05-01. Restriction of emission of particulate matter from industrial processes.

1. General provisions.

   a. This section applies to any operation, process, or activity from which particulate matter is emitted except the burning of fuel for indirect heating in which the products of combustion do not come into direct contact with process materials, the burning of refuse, and the processing of salvable material by burning.

   b. The process weight rate per hour referred to in this section shall be based upon the normal operation maximum capacity of the equipment, and if such normal maximum capacity should be increased by process or equipment changes, the new normal maximum capacity shall be used as the process weight in determining the allowable emissions.

2. Emission limitations. No person shall cause, suffer, allow, or permit the emission of particulate matter in any one hour from any source in excess of the amount shown in Table 3 for the process weight allocated to such source.

   a. Exceptions.

      (1) Temporary operational breakdowns or cleaning of air pollution equipment for any process are permitted provided the owner or operator immediately advises the department of the circumstances and outlines an acceptable corrective program and provided such operations do not cause an immediate public health hazard.

(2) The department may prescribe air quality control requirements that are more restrictive and more extensive than provided in subsection 2 if the particulate matter emitted is a radioactive, toxic, or deleterious substance which may affect human health or well-being or that would cause significant damage to animal or plant life.

(3) Any existing emission source which has particulate collection equipment with a collection efficiency of ninety-nine and seven-tenths percent or more by weight shall be considered as meeting the provisions of subsection 2. The efficiency of the particulate collection equipment shall be determined as outlined in section 33-15-05-04 with the process being served by the particulate collection equipment being run at normal operation maximum capacity.

(4) Any portable emission source, not operated at the same premise for more than six months shall be considered as meeting the provisions of subsection 2 if the source stack or stacks are equipped with particulate collection efficiency of eighty-five percent or more by weight as determined in paragraph 3, and all of the following conditions are met:

(a) The source must not be located within a city.

(b) The source must not be located within one-half mile [.80 kilometers] of any occupied residence, and within one mile [1.61 kilometers] of the source there shall be no more than two occupied residences.

(c) The source must not be located within one-quarter mile [.40 kilometers] of any highway or public road.

b. Grievance procedure. If any party is aggrieved by the department's decision as referenced in paragraph 2 of subdivision a, that party may request a hearing before the department to review such decision. Such hearing must be conducted according to article 33-22 and North Dakota Century Code chapter 28-32. If a hearing is requested, the requirements of paragraph 2 of subdivision a are not effective until ordered by the department at the conclusion of the hearing process.

Table 3.

Maximum Allowable Rates of Emission of Particulate Matter from Industrial Processes

English		Metric	
Process Weight Rate (p)	Allowable Emission Rate (E)	Process Weight Rate (p)	Allowable Emission Rate (E)
tons/hr	lb/hr	metric tons/hr	kg/hr
0.05	0.551	0.045	0.25
0.25	1.62	0.23	0.74
0.50	2.58	0.45	1.16
2.50	7.58	2.27	3.43
5.00	12.05	4.54	5.46
10.00	19.18	9.07	8.67
25.00	35.43	22.68	16.03
50.00	44.58	45.36	20.21
250.00	60.96	226.80	27.65
500.00	68.96	453.59	31.29
1000.00	77.59	907.19	35.21
2500.00	90.06	2267.96	40.87

Interpolation of the data in this table for process weight rates up to 30 tons/hr [27.21 metric tons/hr] shall be accomplished by the use of the equations:

$$E = 4.10\ p^{0.67} \quad \text{(English units)}$$

$$E = 1.98\ p^{0.67} \quad \text{(Metric units)}$$

and interpolation and extrapolation of the data for process weight rates in excess of 30 tons/hr [27.21 metric tons/hr] shall be accomplished by the use of the equations:

$$E = 55.0\ p^{0.11} - 40 \quad \text{(English units)}$$

$$E = 25.25\ p^{0.11} - 18.2 \quad \text{(Metric units)}$$

where E = allowable emission rate in lb/hr [kg/hr] and p = process weight rate in tons/hr [metric tons/hr].

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-05-02. **Maximum allowable emission of particulate matter from fuel burning equipment used for indirect heating.**

1. General provisions:

   a. This section applies to installations in which fuel is burned for the primary purpose of producing steam, hot water, hot air or other indirect heating of liquids, gases, or solids and, in the course of doing so, the products of combustion do not come into direct contact with process materials. Fuels include those such as coal, coke, lignite, coke breeze, fuel oil, and wood but do not include refuse. When any products or byproducts of a manufacturing process are burned for the same purpose or in conjunction with any fuel, the same maximum emission limitations shall apply.

   b. The maximum allowable particulate matter which may be emitted from fuel burning units at a source is determined by the maximum or manufacturer's rated heat input of each unit.

2. Emission limitations.

   a. Existing installations. No person shall cause or permit the emission of particulate matter, caused by combustion of fuel in any existing fuel burning equipment, from any stack or chimney in excess of eighty-hundredths pounds of particulates per million British thermal units [344 nanograms per joule] heat input. Provided, however, as technology develops for making new control equipment compatible, both technically and economically, with present plants they shall comply with limitations on emissions of particulate matter from fuel burning installations as outlined in subdivision b when directed by the department.

   b. New installations. No person shall cause or permit the emission of particulate matter, caused by the combustion of fuel in any new fuel burning equipment, from any stack or chimney in excess of the quantity set forth in table 4.

   c. Means shall be provided in all newly constructed units and wherever practicable in existing units to allow the periodic measurement of fly ash and other particulate matter.

   d. No person may burn or cause or permit the burning of refuse including preservative treated wood in any installation which was designed for the sole purpose of burning fuel unless approved by the department.

e. ~~Sources subject to section 33-15-05-02~~ Existing or new installations, with a heat input of not more than ten million British thermal units per hour and sources with multiple boilers with a total aggregate heat input of not more than ten million British thermal units per hour, shall be exempt from the ~~allowable rate of emissions~~ applicable allowable emission rate set forth in ~~table 4~~ subdivision a or in table 4, respectively. These sources shall be subject to visible emission and ambient air quality standards.

f. Any new or existing source whose heat input is greater than two hundred fifty million British thermal units per hour and is equipped with state of the art control technology capable of complying with the particulate emission limitations of paragraph 1 of subdivision c of subsection 1 of section 33-15-12-04 shall comply with such limitations when directed by the department.

g. If any party is aggrieved by the department's decision as referenced in subdivision a or f, that party may request a hearing before the department to review such decision. Such hearing must be conducted according to article 33-22 and North Dakota Century Code chapter 28-32. If a hearing is requested, the emission limitations as referenced in subdivision a or f (whichever is applicable) are not effective until ordered by the department at the conclusion of the hearing process.

Table 4.

Maximum Allowable Rates of Emission of Particulate Matter from New Fuel Burning Equipment

Heat Input (H)	Allowable Emission Rate (E)	Heat Input (H)	Allowable Emission Rate (E)
10^6 Btu/hr	lb/10^6 Btu	joules/hr	nanogram/joule
10 or less	~~exempt~~0.600	1.05×10^{10}	~~exempt~~258
20	0.548	2.11×10^{10}	235
30	0.519	3.16×10^{10}	224
40	0.500	4.22×10^{10}	215
50	0.486	5.27×10^{10}	209
100	0.444	1.05×10^{11}	191
150	0.421	1.58×10^{11}	181
200	0.405	2.11×10^{11}	174
250	0.394	2.64×10^{11}	169

Interpolation and extrapolation of the data in this table shall be accomplished by the use of equations:

$E = 0.811\ H^{-0.131}$ (English units)

$E = 5307\ H^{-0.131}$ (Metric units)

where E = allowable emission rate in lb/million Btu of heat input [nanogram/joule] and H = heat input in millions of Btu/hr [joules/hr].

History: Amended effective October 1, 1987; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-05-03. **Incinerators.**

1. General provisions.

    a. This section applies to any incinerator used to dispose of refuse or other wastes by burning and the processing of salvageable material by burning.

    b. The burning capacity of an incinerator shall be the manufacturer's or designer's guaranteed maximum rate or such other rate as may be determined by the department in accordance with good engineering practices. In case of conflict, the determination made by the department shall govern.

2. Restriction of emissions of particulate matter from incinerators.

    a. No person shall cause or permit the emission of particulate matter from the stack or chimney of any incinerator in excess of the amount shown in table 5 for the refuse burning rate allocated to such incinerator.

    b. All new incinerators and all existing incinerators to be modified to meet the requirements of this section and which are to burn type 2, 3, 4, 5, and 6 waste as classified by the incinerator institute of America must be equipped with auxiliary fuel burners of such capacity and design as to assure a temperature in the secondary combustion chamber of at least one thousand five hundred degrees Fahrenheit [1088 degrees Kelvin] for a minimum of three-tenths second retention time.

    c. No incinerator shall be used for the burning of refuse unless such incinerator is a multiple chamber incinerator. Existing incinerators which are not multiple chamber incinerators may be altered, modified, or rebuilt as may be necessary to meet this requirement. The department may approve any other alteration or modification to an existing incinerator if such be found by it to be equally effective for the purpose of air pollution control as a modification or alteration which would result in a multiple chamber incinerator. All new incinerators shall be multiple chamber incinerators, provided that the department may approve any other kind of incinerator if it finds in advance of construction or installation that such other kind of incinerator is equally effective for purposes of air pollution control.

Existing incinerators burning type 2 and type 3 waste which are not multiple chamber incinerators and do not otherwise meet the requirements of subdivision a shall be modified or rebuilt in compliance with this section. Existing incinerators burning type 4, 5, or 6 waste require the specific approval of the department. Incinerators handling any garbage and organic waste must have auxiliary fuel burners that maintain a minimum temperature of one thousand five hundred degrees Fahrenheit [1088 degrees Kelvin] for a minimum of three-tenths second retention time.

Table 5.

Maximum Allowable Rates of Emission of Particulate Matter from Incinerators

Refuse Burning Rate (R)	Allowable Emission Rate (E)	Refuse Burning Rate (R)	Allowable Emission Rate (E)
lb/hr	lb/hr	kg/hr	kg/hr
10	0.041	4.54	0.019
50	0.174	22.68	0.079
300	0.873	136.08	0.396
700	1.87	317.51	0.850
1,000	2.58	453.59	1.17
1,500	3.38	681.39	1.53
3,500	5.97	1,587.57	2.71
8,000	10.39	3,628.72	4.71
25,000	22.29	11,339.75	10.10
100,000	56.42	45,359.00	25.57

Interpolation of the data in this table for refuse burning rates up to 1,000 lb/hr [453.59 kg/hr] shall be accomplished by the use of the equations:

$$E = 0.00515 R^{0.90} \quad \text{(English units)}$$

$$E = 0.00476 R^{0.90} \quad \text{(Metric units)}$$

and interpolation and extrapolation of the data for refuse burning rates in excess of 1,000 lb/hr [453.59 kg/hr] shall be accomplished by the use of the equations:

$$E = 0.0252 R^{0.67} \quad \text{(English units)}$$

$$E = 0.0194 R^{0.67} \quad \text{(Metric units)}$$

where E = allowable emission rate in lb/hr [kg/hr] and R = refuse burning rate in lb/hr [kg/hr].

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-05-04. **Methods of measurement.**

1. The reference methods in appendix A to chapter 33-15-12, its replacement or other methods, as approved by the department shall be used to determine compliance with sections 33-15-05-01, 33-15-05-02, and 33-15-05-03 as follows:

   a. Method 1 for selection of sampling site and sample traverses.

   b. Method 2 for determination of stack gas velocity and volumetric flow rate.

   c. Method 3 for gas analysis.

   d. Method 4 for determination of moisture in the stack gas.

   e. Method 5 for concentration of particulate matter and the associated moisture content. The sampling time for each run shall be at least sixty minutes and the minimum sampling volume shall be thirty dry cubic feet at standard conditions [0.85 dscm], except that smaller sampling times or volumes when necessitated by process variables or other factors may be approved by the department.

      (1) For each run using method 5 for fuel burning equipment, the emissions expressed in pounds per million British thermal units [nanograms per joule] shall be determined by the following procedures:

      $$E = CF\left(\frac{20.9}{20.9 - \%O_2}\right) \text{ or } E = CF_c\left(\frac{100}{\%\,CO_2}\right)$$

      where:

      (a) E = pollutant emission, lb/million Btu [ng/j].

      (b) C = pollutant concentration, lb/dscf [ng/dscm].

      (c) $\%O_2$ = oxygen content by volume, dry basis.

      (d) $\%CO_2$ = carbon dioxide content by volume, dry basis.

The percent oxygen and percent carbon dioxide shall be determined by using the integrated or grab sampling and analysis procedures of method 3 by traversing the duct at the same sampling locations used for each run of method 5.

(e) F and F_c = factors listed in the following table:

F FACTORS FOR VARIOUS FUELS

FUEL TYPE	F dscf/10^6 Btu	F_c scf/10^6 Btu
Coal		
Anthracite	10140	1980
Bituminous	9820	1810
Lignite	9900	1920
Oil	9220	1430
Gas		
Natural	8740	1040
Propane	8740	1200
Butane	8740	1260
Wood	9280	1840
Wood Bark	9640	1860

For facilities firing combinations of fuels for F or F_c factors designated in this section shall be prorated in accordance with the applicable formula as follows:

$$F = \sum_{i=1}^{n} x_i F_i \text{ or } F_c = \sum_{i=1}^{n} x_i (F_c)_i$$

where:

x_i = the fraction of total heat input derived from each type of fuel.

F_i or $(F_c)_i$ = the applicable F or F_c factor for each fuel type.

n = the number of fuels being burned in combination.

(2) For each run using method 5 for industrial processes, the emission rate expressed in pounds per hour shall be determined by the equation, lb/hr = (Q_s) (c) where:

Q_s = Volumetric flow rate of the total effluent in dscf/hr and

c = Particulate concentration in lb/dscf

2. The heat content of fuels shall be determined in accordance with A.S.T.M. methods D2015-66(72) (solid fuels), D240-64(73) (liquid fuels), or D1826-64(70) (gaseous fuels) as applicable.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

CHAPTER 33-15-10
CONTROL OF PESTICIDES

Section
33-15-10-01 Pesticide Use Restricted
33-15-10-02 Restrictions on the Disposal of Surplus Pesticides and Empty Pesticide Containers

33-15-10-01. Pesticide use restricted.

1. No person shall use or permit the use of pesticides in such manner that will cause the airborne drift of pesticides off the premises on which they are being applied in such quantities that cause damage or injury to human health, crops, domestic animals, pollinating insects, vegetation, fish, and wildlife.

2. No person shall aerial spray or permit the aerial spraying of pesticides over a city in the state without the approval of the department. Such spraying will be allowed only for well-thought-out public health purposes and even then only in emergencies or potential emergencies.

History: Amended effective January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-10-02. Restrictions on the disposal of surplus pesticides and empty pesticide containers.

1. No person shall dispose of or permit the disposal of surplus pesticides and empty pesticide containers in such a manner as may cause pesticides to become airborne in such quantities that may cause injury or damage to human health, crops, domestic animals, pollinating insects, vegetation, fish, and wildlife.

2. No person shall dispose of or permit the disposal of surplus pesticides by open burning.

3. Burning of empty pesticide containers is not allowed except where no municipal collection and disposal service is available and all of the following conditions are met:

a. Only plastics composed of carbon, hydrogen, or oxygen may be burned. Plastics composed of polymers of nitrogen, halogens including chlorine, or sulfur may not be burned.

b. The containers must be empty and triple rinsed before being burned. Containers such as bags or liners must be thoroughly emptied of pesticides prior to burning.

c. The open burning must be conducted on the farm by the farmers who generated the empty containers.

d. The open burning shall be conducted in an open area away from buildings and residences, and only when the wind direction disperses the smoke away from any human or animal.

e. Burning may not be conducted by commercial applicators or to dispose of large stockpiles of empty containers.

The authority to conduct such open burning does not exempt or excuse a person from the consequences, damages, or injuries which may result therefrom.

4. The disposal of surplus pesticides and empty pesticide containers must be in accordance with rules promulgated pursuant to authorities of the Solid Waste Management and Land Protection Act and the Hazardous Waste Management Act of the North Dakota Century Code.

5. The handling and disposal of pesticide containers, including burning, must comply with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as amended October 25, 1988.

History: Amended effective October 1, 1987; January 1, 1989; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

CHAPTER 33-15-12
STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Section
33-15-12-01 General Provisions
33-15-12-02 [Reserved]
33-15-12-03 [Reserved]
33-15-12-04 Standards of Performance

33-15-12-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to the owner or operator of any stationary source whose construction or modification is commenced after the effective date of each section and subsection. These standards shall be applied in conjunction with the procedures set out in chapter 33-15-14.

2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in section 33-15-01-04.

   a. "Administrator" means the administrator of the United States environmental protection agency or his authorized representative.

   b. "Affected facility" means, with reference to a stationary source, any apparatus to which a standard is applicable.

   c. "Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated to the department's and administrator's satisfaction, in specific cases, to produce results adequate for the department's and administrator's determination of compliance.

   d. "Capital expenditure" means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be reduced by any "excluded additions" as defined in Internal Revenue Service Publication 534, as would be done for tax purposes.

e. "Commenced" as applied to construction of a new source means that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

f. "Construction" means fabrication, erection, or installation of an affected facility.

g. "Continuous monitoring system" means the total equipment, required under the emission monitoring divisions in applicable subsections, used to sample and condition (if applicable), to analyze, and to provide a permanent record of emissions or process parameters.

h. "Equivalent method" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the department's and administrator's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

i. "Existing facility" means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this chapter and the construction or modification of which was commenced before the effective date of that standard; or any apparatus which could be altered in such a way as to be of that type.

j. "Isokinetic sampling" means sampling in which the linear velocity of the gas entering the sampling nozzle is equal to that of the undisturbed gas stream at the sample point.

k. "Malfunction" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

l. "Modification" means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

m. "Monitoring device" means the total equipment, required under the monitoring of operations divisions in applicable subsections, used to measure and record (if applicable) process parameters.

n. "New source" means any stationary source, the construction or modification of which is commenced after the effective date of a standard of performance in this chapter which will be applicable to such source.

o. "Nitrogen oxides" means all oxides of nitrogen except nitrous oxide, as measured by test methods set forth in this chapter.

p. "One-hour period" means any sixty-minute period commencing on the hour.

q. "Opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

r. "Owner or operator" means any person who owns, leases, operates, controls, or supervises an affected facility or a stationary source of which an affected facility is a part.

s. "Particulate matter" means any finely divided solid or liquid material, other than uncombined water, as measured by method 5 of appendix A to this chapter or an equivalent or alternative method.

t. "Proportional sampling" means sampling at a rate that produces a constant ratio of sampling rate to stack gas flow rate.

u. "Reference method" means any method of sampling and analyzing for an air pollutant as ~~described in appendix A to this chapter.~~ specified in the applicable subsection.

v. "Run" means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.

w. "Shutdown" means the cessation of operation of an affected facility for any purpose.

x. "Six-minute period" means any one of the ten equal parts of a one-hour period.

y. "Standard" means a standard of performance promulgated under this chapter.

z. "Standard conditions" means a temperature of two hundred ninety-three degrees Kelvin [68 degrees Fahrenheit] and a pressure of one hundred one and three-tenths kilopascals [29.92 inches] of mercury.

aa. "Startup" means the setting in operation of an affected facility for any purpose.

bb. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant.

cc. "Volatile organic compound" means any organic compound which participates in atmospheric photochemical reactions; or which is measured by a reference method, an equivalent method, an alternative method, or which is determined by procedures specified under any subsection.

3. **Abbreviations.** The abbreviations used in this chapter have the following meanings:

A - ampere
A.S.T.M. - American society for testing and materials
Btu - British thermal unit
°C - degree Celsius (centigrade)
cal - calorie
CdS - cadmium sulfide
cfm - cubic feet per minute
cu ft - cubic feet
CO - carbon monoxide
CO_2 - carbon dioxide
dcf - dry cubic feet
dcm - dry cubic meter
dscm - dry cubic meter at standard conditions
dscf - dry cubic feet at standard conditions
eq - equivalents
°F - degree Fahrenheit
ft - feet
g - gram
gal - gallon
g eq - gram equivalents
gr - grain
hr - hour
HCl - hydrochloric acid

Hg - mercury
H_2O - water
H_2S - hydrogen sulfide
H_2SO_4 - sulfuric acid
Hz - hertz
in.- inch
j - joule
°K - degree Kelvin
k - 1,000
kg - kilogram
l - liter
lpm - liter per minute
lb - pound
m - meter
m^3 - cubic meter
meq - milliequivalent
Mg - megagram - 10^6 gram
min - minute
mg - milligram
ml - milliliter
mm - millimeter
mol - mole
mol. wt. - molecular weight
N_2 - nitrogen
N - newton
ng - nanogram - 10^{-9} gram
nm - nanometer - 10^{-9} meter
NO - nitric oxide
NO_2 - nitrogen dioxide
NO_x - nitrogen oxides
O_2 - oxygen
Pa - pascal
ppb - parts per billion
ppm - parts per million
psia - pounds per square inch absolute
psig - pounds per square inch gage
°R - degree Rankine
sec - second
scf - cubic feet at standard conditions
scfh - cubic feet per hour at standard conditions
scm - cubic meter at standard conditions
SO_2 - sulfur dioxide
SO_3 - sulfur trioxide
SO_x - sulfur oxides
sq ft - square feet
std - at standard conditions
μg - microgram - 10^{-6} gram
V - volt
W - watt
Ω - ohm

4. Determination of construction or modification.

a. When requested to do so by an owner or operator, the department will make a determination of whether action taken or intended to be taken by such owner or operator constitutes construction (including reconstruction) or modification or the commencement thereof within the meaning of this section.

b. The department will respond to any request for a determination under subdivision a within thirty days of receipt of such request.

5. **Review of plans.**

a. When requested to do so by an owner or operator, the department will review plans for construction or modification for the purpose of providing technical advice to the owner or operator.

b. (1) A separate request shall be submitted for each construction or modification project.

(2) Each request shall identify the location of such project, and be accompanied by technical information describing the proposed nature, size, design, and method of operation of each affected facility involved in such project, including information on any equipment to be used for measurement or control of emissions.

c. Neither a request for plans review nor advice furnished by the department in response to such request shall (1) relieve an owner or operator of legal responsibility for compliance with any provision of this chapter or of any applicable federal or local requirement, or (2) prevent the department from implementing or enforcing any provision of this article.

6. **Notification and recordkeeping.**

a. Any owner or operator subject to the provisions of this chapter shall furnish the department written notification as follows:

(1) A notification of the date construction (or reconstruction as defined under subsection 13) of an affected facility is commenced postmarked no later than thirty days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

(2) A notification of the anticipated date of initial startup of an affected facility not

more than sixty days or less than thirty days prior to such date.

(3) A notification of the actual date of initial startup of an affected facility within fifteen days after such date.

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any pollutant to which a standard applies, unless that change is specifically exempted under an applicable section or in subdivision e of subsection 12. This notice shall be postmarked sixty days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The department may request additional relevant information subsequent to this notice.

(5) A notification of the date upon which demonstration of the continuous monitoring system performance commences in accordance with subdivision c of subsection 11. Notification shall be postmarked not less than thirty days prior to such date.

(6) A notification of the anticipated date for conducting the opacity observations required by paragraph 1 of subdivision e of subsection 9. The notification must include, if appropriate, a request for the department to provide a visible emissions reader during a performance test. The notification must be postmarked not less than thirty days prior to such date.

(7) A notification that continuous opacity monitoring system data results will be used to determine compliance with the applicable opacity standard during a performance test required by subsection 7 of section 33-15-12-01 in lieu of method 9 observation data as allowed by paragraph 5 of subdivision e of subsection 9 of section 33-15-12-01. This notification shall be postmarked not less than thirty days prior to the date of the performance test.

b. Any owner or operator subject to the provisions of this chapter shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

c. Each owner or operator required to install a continuous monitoring system shall submit a written report of excess emissions (as defined in applicable subsections) to the department for every calendar quarter. All quarterly reports shall be postmarked by the thirtieth day following the end of each calendar quarter and shall include the following information:

   (1) The magnitude of excess emissions computed in accordance with subdivision h of subsection 11, any conversion factor or factors used, and the date and time of commencement and completion of each time period of excess emissions.

   (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

   (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

   (4) When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

d. Any owner or operator subject to the provisions of this chapter shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this chapter recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

e. Individual sections of this chapter may include specific provisions which clarify or make inapplicable the provisions set forth in this subsection.

7. **Performance tests.**

a. Within sixty days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup of such facility, and at such other times as may be required by the department, the owner or operator of such facility shall conduct performance tests and furnish the department a written report of the results of such performance tests. The period during which performance tests are conducted shall be a period of operation pursuant to a permit to construct.

b. Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subsection of section 33-15-12-04, unless the department and administrator (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, ~~or the department and administrator:~~ (~~1~~2) approves the use of an equivalent method, ~~or~~ (~~2~~3) approves the use of an alternative method the results of which it has determined to be adequate for indicating whether a specific source is in compliance, ~~or~~ (~~3~~4) waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the department's satisfaction that the affected facility is in compliance with the standard, or (5) approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in this subdivision may be construed to abrogate the department's authority to require testing.

c. Performance tests shall be conducted under such conditions as the department shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the department such records as may be necessary to determine the conditions for the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

d. The owner or operator of an affected facility shall provide the department thirty days' prior notice of the performance test, except as specified under other subsections, to afford the department the opportunity to have an observer present.

e. 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 test methods applicable to such facility.~~

Sampling ports adequate for test methods applicable to such facility. This includes (1) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (2) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

(2) Safe sampling platform or platforms.

(3) Safe access to sampling platform or platforms.

(4) Utilities for sampling and testing equipment.

f. Unless otherwise specified in an applicable subsection, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the department's approval, be determined using the arithmetic mean of the results of the two other runs, or the department may require a new performance test.

8. **Availability of information.**

   a. Emission data provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public at the department's offices.

   b. As provided in subdivision a, any records, reports, or information provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public, except that (1) upon a showing satisfactory to the department by any person that such records, reports, or information, or particular part thereof (other than emission data), if made public, would divulge methods or processes entitled to protection as trade secrets of such person, the department shall consider such records, reports, or information, or particular part thereof, confidential in accordance with the purposes of section 1905 of title 18 of the United States Code, except that such records, reports, or information, or particular part thereof considered confidential, may be disclosed to other officers, employees, or authorized representatives of the department and the United States concerned with carrying out the provisions of this chapter or when relevant in any proceeding under this chapter; and (2) information received by the department solely for the purposes of subsection 4 and subdivisions a and b of subsection 5 shall not be disclosed by the department if it is identified by the owner or operator and found by the department to be a trade secret or confidential, commercial, or financial information.

9. **Compliance with standards and maintenance requirements.**

   a. Compliance with standards in this chapter, other than opacity standards, shall be determined only by performance tests established by subsection 7, unless otherwise specified in the applicable standard.

   b. Compliance with opacity standards in this chapter shall be determined by conducting observations in accordance with reference method 9 in appendix A of this chapter, any alternative method that is approved by the department and administrator , or as provided in paragraph 5 of subdivision e of this subsection. For purposes of determining initial compliance, the minimum total time of observations shall be three hours (thirty 6-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard).

c. The opacity standards set forth in this chapter shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

d. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

e. (1) For the purpose of demonstrating initial compliance, opacity observations must be conducted concurrently with the initial performance test required in subsection 7, unless one of the following conditions apply. If no performance test under subsection 7 is required, then opacity observations must be conducted within sixty days after achieving the maximum production rate at which the affected facility will be operated but no later than one hundred eighty days after initial startup of the facility. If visibility or other conditions prevent the opacity observations from being conducted concurrently with the initial performance test required under subsection 7, the source owner or operator shall reschedule the opacity observations as soon after the initial performance test as possible, but not later than thirty days thereafter, and shall advise the department of the rescheduled date. In these cases, the thirty-day prior notification to the department required in paragraph 6 of subdivision a of subsection 6 shall be waived. The rescheduled opacity observations must be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under subsection 7. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity observations from being made concurrently with the initial performance test in accordance with procedures contained in reference method 9 of appendix A of this chapter. Opacity readings of portions of plumes which contain condensed, uncombined water vapor may not be used for purposes of determining compliance with opacity standards. The owner or operator of an affected facility shall make available, upon request by the department, such records as may be necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification. Except as provided in paragraph 5 of subdivision e of subsection 9 of section 33-15-12-01, the results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) performance specification 1 in appendix B, has been properly maintained and (at the time of the alleged violation) that the resulting data have not been altered in any way.

(2) Except as provided in paragraph 3 of this subdivision, the owner or operator of an affected facility to which an opacity standard in this chapter applies shall conduct opacity observations in accordance with subdivision b of this subsection, shall record the opacity of emissions, and shall report to the department the opacity results along with the results of the initial performance test required under subsection 7. The inability of an owner or operator to secure a visible emissions observer may not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

(3) The owner or operator of an affected facility to which an opacity standard in this chapter applies may request the department to determine and to record the opacity of emissions from the affected facility during

the initial performance test and at such times as may be required. The owner or operator of the affected facility shall report the opacity results. Any request to the department to determine and to record the opacity of emissions from an affected facility must be included in the notification required in paragraph 6 of subdivision a of subsection 6. If, for some reason, the department cannot determine and record the opacity of emissions from the affected facility during the performance test, then the provisions of paragraph 1 of subdivision e of this subsection shall apply.

(4) An owner or operator of an affected facility using a continuous opacity monitor (transmissometer) shall record the monitoring data produced during the initial performance test required by subsection 7 and shall furnish the department a written report of the monitoring results along with method 9 and subsection 7 performance test results.

(5) An owner or operator of an affected facility subject to an opacity standard may submit for compliance purposes, continuous opacity monitoring system (COMS) data results produced during any performance test required under subsection 7 of section 33-15-12-01 in lieu of method 9 observation data. If an owner or operator elects to submit continuous opacity monitoring system (COMS) data for compliance with the opacity standard, the owner or operator must notify the department of that decision, in writing, at least thirty days before any performance test required under subsection 7 of section 33-15-12-01 is conducted. Once the owner or operator of an affected facility has notified the department to that effect, the continuous opacity monitoring system (COMS) data results will be used to determine opacity compliance during subsequent tests required under subsection 7 of section 33-15-12-01 until the owner or operator notifies the department, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under subsection 7 of section 33-15-12-01 using continuous opacity monitoring system (COMS) data, the minimum total time of continuous opacity monitoring system (COMS) data collection shall be averages of all six-

minute continuous periods within the duration of the mass emission performance test. Results of the continuous opacity monitoring system (COMS) opacity determinations shall be submitted along with the results of the performance test required under subsection 7 of section 33-15-12-01. The owner or operator of an affected facility using a continuous opacity monitoring system (COMS) for compliance purposes is responsible for demonstrating that the continuous opacity monitoring system (COMS) meets the requirements specified in subdivision c of subsection 11 of section 33-15-12-01, and that the continuous opacity monitoring system (COMS) has been properly maintained and operated, and that the resulting data have not been altered in any way. If continuous opacity monitoring system (COMS) data results are submitted for compliance with the opacity standard for a period of time during which method 9 data indicates noncompliance, the method 9 data will be used to determine opacity compliance.

(6) Upon receipt from an owner or operator of the written reports of the results of the performance tests required by subsection 7 of section 33-15-12-01, the opacity observation results and observer certification required by paragraph 1 of subdivision e of subsection 9 of section 33-15-12-01, and the continuous opacity monitoring system (COMS) results, if applicable, the department will make a finding concerning compliance with opacity and other applicable standards. If continuous opacity monitoring system (COMS) data results are used to comply with an opacity standard, only those results are required to be submitted along with the performance test results required by subsection 7 of section 33-15-12-01. If the department and administrator finds that an affected facility is in compliance with all applicable standards for which performance tests are conducted in accordance with subsection 7 of section 33-15-12-01 of this chapter but during the time such performance tests are being conducted fails to meet any applicable opacity standard, he shall notify the owner or operator and advise him that he may petition the department within ten days of receipt of notification to make appropriate adjustment to the opacity standard for the affected facility.

(7) The department and administrator will grant such a petition upon a demonstration by the owner or operator that the affected facility and associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of emissions during the performance tests; that the performance tests were performed under the conditions established by the department and administrator; and that the affected facility and associated air pollution control equipment were performing under the conditions established by the department and administrator; and that the affected facility and associated air pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity standard.

(8) The department and administrator will establish an opacity standard for the affected facility meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity standard at all times during which the source is meeting the mass or concentration emission standard. The department and administrator will then promulgate the new opacity standard for such facility.

10. **Circumvention.** No owner or operator subject to the provisions of this chapter shall build, erect, install, or use any article, machine, equipment, or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

11. **Monitoring requirements.**

a. For the purposes of this subsection, all continuous monitoring systems required under applicable subsections shall be subject to the provisions of this subsection upon promulgation of performance specifications for continuous monitoring systems under appendix B, and if the continuous monitoring system is used to demonstrate compliance with emission limits on a continuous basis, appendix F, unless otherwise specified in an applicable subsection or by the department is applicable December 4, 1987.

b. All continuous monitoring systems and monitoring devices must be installed and operational prior to conducting performance tests under subsection 7. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device.

c. If the owner or operator of an affected facility elects to submit continuous opacity monitoring system (COMS) data for compliance with the opacity standard as provided under paragraph 5 of subdivision e of subsection 9 of section 33-15-12-01, the owner or operator shall conduct a performance evaluation of the continuous opacity monitoring system (COMS) as specified in performance specification 1, appendix B, before the performance test required under subsection 7 of section 33-15-12-01 is conducted. Otherwise, the owner or operator of an affected facility shall conduct a performance evaluation of the continuous opacity monitoring system (COMS) or continuous emission monitoring system (CEMS) during any performance test required under subsection 7 of section 33-15-12-01 or within thirty days thereafter in accordance with the applicable performance specification in appendix B. The owner or operator of an affected facility shall conduct continuous opacity monitoring system (COMS) or continuous emission monitoring system (CEMS) performance evaluations at such other times as may be required by the department.

(1) The owner or operator of an affected facility using a continuous opacity monitoring system (COMS) to determine opacity compliance during any performance test required under subsection 7 of section 33-15-12-01 and as described in paragraph 5 of subdivision e of subsection 9 of section 33-15-12-01 shall furnish the department two or, upon request, more copies of a written report of the results of the continuous opacity monitoring system (COMS) performance evaluation described in subdivision c of this subsection at least ten days before the performance test required under subsection 7 of section 33-15-12-01 is conducted.

(2) Except as provided in paragraph 1 of subdivision c of this subsection, the owner or operator of an affected facility shall furnish

the department within sixty days of completion two or, upon request, more copies of a written report of the results of the performance evaluation.

d. (1) Owners and operators of all continuous monitoring systems installed in accordance with the provisions of this chapter shall check the zero (or low-level value between zero and twenty percent of span value) and span (fifty to one hundred percent of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span shall, as a minimum, be adjusted whenever the twenty-four-hour zero drift or twenty-four-hour span drift exceeds two times the limits of the applicable performance specifications in appendix B. The system must allow the amount of excess zero and span drift measured at the twenty-four-hour interval checks to be recorded and quantified whenever specified. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero or span drift adjustments except that for systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds four percent opacity.

(2) For continuous monitoring systems measuring opacity of emissions, minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

e. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under subdivision d, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(1) All continuous monitoring systems referenced by subdivision c for measuring opacity of emissions shall complete a minimum of one cycle of operation (sampling, analyzing, and

data recording) for each successive ten-second period and one cycle of data recording for each successive six-minute period.

(2) All continuous monitoring systems referenced by subdivision c for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive fifteen-minute period.

f. All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable performance specifications of appendix B of this chapter shall be used.

g. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install applicable continuous monitoring systems on each separate effluent unless the installation of fewer systems is approved by the department. When more than one continuous monitoring system is used to measure emissions from one affected facility (e.g. multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system.

h. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six-minute averages and for continuous monitoring systems other than opacity to one-hour averages for time periods defined in subsection 2. Six-minute opacity averages shall be calculated from thirty-six or more data points equally spaced over each six-minute period. For continuous monitoring systems other than opacity, one-hour averages shall be computed from four or more data points equally spaced over each one-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this subdivision. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or nonreduced form (e.g., parts per million pollutant and percent oxygen or pounds per million British thermal units of pollutant). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subsections. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in applicable subsections to specify the emission limit (e.g., rounded to the nearest one percent opacity).

~~(1)~~i. After receipt and consideration of written application, the department may approve alternatives to any monitoring procedures or requirements of this chapter including, but not limited to, the following:

~~(a)~~(1) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this regulation would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases.

~~(b)~~(2) Alternative monitoring requirements when the affected facility is infrequently operated.

~~(c)~~(3) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

~~(d)~~(4) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

~~(e)~~(5) Alternative methods of converting pollutant concentration measurements to units of the standards.

~~(f)~~(6) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

~~(g)~~ (7) Alternatives to the American society for testing and materials test methods or sampling procedures specified by any subsection.

~~(h)~~ (8) Alternative continuous monitoring systems that do not meet the design or performance requirements in performance specification 1, appendix B, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in performance specification 1. The department may require that such demonstration be performed for each affected facility.

~~(i)~~ (9) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.

~~(j)~~ (10) An alternative to the relative accuracy test specified in performance specification 2 of appendix B may be requested as follows:

~~(1)~~ (a) An alternative to the reference method tests for determining relative accuracy is available for sources with emission rates demonstrated to be less than fifty percent of the applicable standard. A source owner or operator may petition the department to waive the relative accuracy test in section 7 of performance specification 2 and substitute the procedures in section 10 if the results of a performance test conducted according to the requirements in subsection 7 of this section or other tests performed following the criteria in subsection 7 of this section demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than fifty percent of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operator may petition the department to waive the relative accuracy test and substitute the procedures in section 10 of performance specification 2 if the control device exhaust emission rate is less than fifty percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the continuous emission monitoring system is used to determine compliance continuously with the applicable standard. The petition to waive the relative accuracy test shall include a detailed description of the procedures to be applied. Included shall be location and procedure for conducting the alternative, the concentration or response levels of the alternative relative accuracy materials, and the other equipment checks included in the alternative procedure. The department will review the petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the continuous emission monitoring system (CEMS) data (e.g., data collection purposes other than NSPS) and may require specifications more stringent than in performance specification 2 (i.e., the applicable emission limit is more stringent than NSPS).

~~(2)~~ (b) The waiver of a continuous emission monitoring system (CEMS) relative accuracy test will be reviewed and may be rescinded at such time following successful completion of the alternative relative accuracy procedures that the continuous emission monitoring system (CEMS) data indicate the source emissions approaching the level of the applicable standard. The criterion for reviewing the waiver is the collection of continuous emission monitoring system (CEMS) data showing that emissions have exceeded seventy percent of the applicable standard for seven, consecutive, averaging periods as specified by the applicable regulations. For sources subject to standards expressed as control efficiency levels, the criterion for reviewing the waiver is the collection of continuous emission monitoring system (CEMS) data showing that exhaust emissions have exceeded seventy percent of the level needed to meet the control efficiency requirement for seven, consecutive, averaging periods as specified by the applicable rules. It is the responsibility of the source operator to maintain records and determine the level of emissions relative to the criterion on the waiver of relative accuracy testing. If this criterion is exceeded, the owner or operator must notify the department within ten days of such occurrence and include a description of the nature of the cause of the increasing emissions. The department will review the notification and may rescind the waiver and require the owner or operator to conduct a relative accuracy test of the continuous emission monitoring system (CEMS) as specified in section 7 of performance specification 2.

12. **Modification.**

a. Except as provided under subdivisions e and f of this subsection, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.

b. Emission rate shall be expressed as kilograms per hour of any pollutant discharged into the atmosphere for which a standard is applicable. The department shall use the following to determine emission rate:

(1) Emission factors as specified in the latest issue of "Compilation of Air Pollution Emission Factors", EPA Publication No. AP-42, or other emission factors determined by the department to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrate that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph 1 does not demonstrate to the department's satisfaction whether the emission level resulting from the physical or

operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the department's satisfaction that there are reasonable grounds to dispute the result obtained by the department utilizing emission factors as referenced in paragraph 1. When the emission rate is based on results from manual emission tests or continuous monitoring systems, procedures approved by the department shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the department shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

c. The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this chapter any other facility within that source.

d. [Reserved]

e. The following shall not, by themselves, be considered modifications under this chapter:

(1) Maintenance, repair, and replacement which the department determines to be routine for a source category, subject to the provisions of subdivision c of this subsection and subsection 13.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this subsection becomes applicable to that source type as provided by subsection 1 of section 33-15-01-01, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be

designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications, as amended, prior to the change. Conversion to coal required for energy conservation, as specified in section 111(a)(8) of the Clean Air Act, may not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the department determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

f. Special provisions set forth under an applicable subdivision of this subsection shall supersede any conflicting provisions of this chapter.

g. Within one hundred eighty days of the completion of any physical or operational change subject to the control measures specified in subdivision a of this subsection, compliance with all applicable standards must be achieved.

13. **Reconstruction.**

a. An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.

b. "Fixed capital cost" means the capital needed to provide all the depreciable components.

c. "Reconstruction" means the replacement of components of an existing facility to such an extent that:

(1) The fixed capital cost of the new components exceeds fifty percent of the fixed capital cost that would be required to construct a comparable entirely new facility; and

(2) It is technologically and economically feasible to meet the applicable standards set forth in this section.

d. If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds fifty percent of the fixed capital cost that would be required to construct a comparable entirely new facility, the owner or operator shall notify the department of the proposed replacements. The notice must be postmarked sixty days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:

(1) Name and address of the owner or operator.

(2) The location of the existing facility.

(3) A brief description of the existing facility and the components which are to be replaced.

(4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.

(5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.

(6) The estimated life of the existing facility after the replacements.

(7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

e. The department will determine, within thirty days of the receipt of the notice required by subdivision d and any additional information it may reasonably require, whether the proposed replacement constitutes reconstruction.

f. The department's determination under subdivision e shall be based on all of the following:

(1) The fixed capital cost of the replacement in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility.

(2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility.

(3) The extent to which the components being replaced cause or contribute to the emissions from the facility.

(4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.

g. Individual subdivisions of this subsection may include specific provisions which refine and delimit the concept of reconstruction set forth in this chapter.

14. **General control device requirements.**

a. Introduction. This subsection contains requirements for control devices used to comply with applicable sections of chapters 33-15-12 and 33-15-13. The requirements are placed here for administrative convenience and only apply to facilities covered by sections referring to this subsection.

b. Flares. Subdivisions c through f apply to the flares types which are used to comply with this section.

c. (1) Flares must be designed for and operated with no visible emissions as determined by the methods specified in subdivision f except for periods not to exceed a total of five minutes during any two consecutive hours.

(2) Flares must be operated with flame present at all times, as determined by the methods specified in subdivision f.

(3) Flares shall be used only when the net heating value of the gas being combusted is 11.2 Mj/scm [300 Btu/scf] or greater; if the flare is steam assisted or air assisted; or when the net heating value of the gas being combusted is 7.45 Mj/scm [200 Btu/scf] or greater if the flare is nonassisted. The net heating value of the gas being combusted must be determined by the methods specified in subdivision f.

(4) (a) Steam-assisted and nonassisted flares must be designed for and operated with an exit velocity, as determined by the methods specified in paragraph 4 of subdivision f, less than 18.3 meters per second [60 feet per second], except as provided in subparagraphs b and c.

(b) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph 4 of subdivision f, equal to or greater than 18.3 meters per second [60 feet per second] but less than one hundred twenty-two meters per second [400 feet per second] are allowed if the net heating value of the gas being combusted is greater than 37.3 Mj/scm [1,000 Btu/scf].

(c) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph 4 of subdivision f, less than the velocity, V_{max}, as determined by the method specified in paragraph 5 of subdivision f, and less than one hundred twenty-two meters per second [400 feet per second] are allowed.

(5) Air-assisted flares must be designed and operated with an exit velocity less than the velocity, V_{max}, as determined by the method specified in paragraph 6 of subdivision f.

(6) Flares used to comply with this subsection must be steam assisted, air assisted, or nonassisted.

d. Owners or operators of flares used to comply with the provisions of this section shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs. Applicable sections will provide provisions stating how owners or operators of flares shall monitor these control devices.

e. Flares used to comply with provisions of this section shall be operated at all times when emissions may be vented to them.

f. (1) Reference method 22 must be used to determine the compliance of flares with the visible emission provisions of this section. The observation period is two hours and must be used according to method 22.

(2) The presence of a flare pilot flame must be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combined in a flare must be calculated using the following equation:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

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 degrees C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 degrees C;

K = Constant,

$$1.740 \times 10^{-7} \left(\frac{1}{ppm}\right) \left(\frac{g\ mole}{scm}\right) \left(\frac{Mj}{kcal}\right)$$

where the standard temperature for (g mole/scm) is 20 degrees C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by reference method 18 and measured for hydrogen and carbon monoxide by A.S.T.M. D1946-77; and

H_i = Net heat of combustion of sample component i, kcal/g mole at 25 degrees C and 760 mm Hg. The heats of combustion may be determined using A.S.T.M. D2382-76 if published values are not available or cannot be calculated.

(4) The actual exit velocity of a flare must be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by reference methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

(5) The maximum permitted velocity, V_{max}, for flares complying with subparagraph c of paragraph 4 of subdivision c must be determined by the following equation.

$$\text{Log}_{10} (V_{max}) = (H_T + 28.8)/31.7$$

V_{max} = Maximum permitted velocity, m/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in paragraph 3

(6) The maximum permitted velocity, V_{max}, for air-assisted flares must be determined by the following equation:

$V_{max} = 8.706 + 0.7084 (H_T)$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

H_T = The net heating value as determined in paragraph 3.

History: Amended effective October 1, 1987; January 1, 1989; June 1, 1990.
General Authority: NDCC 23-25-03, 28-32-02
Law Implemented: NDCC 23-25-03

33-15-12-02. [Reserved]

33-15-12-03. [Reserved]

33-15-12-04. Standards of performance.

1. **Standards of performance for fossil-fuel steam generators.**

   a. Applicability and designation of affected facility.

      (1) The affected facilities to which the provisions of this subsection apply are:

         (a) Each fossil fuel-fired steam generating unit of more than seventy-three megawatts [250 million Btu/hr] heat input rate.

         (b) Each fossil fuel-fired and wood residue-fired steam generating unit capable of firing fossil fuel at a heat input rate of more than seventy-three megawatts [250 million Btu/hr].

(2) Any change to an existing fossil fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels as defined in this subsection, shall not bring that unit under the applicability of this subsection.

(3) Except as provided in paragraphs 4 and 5 any facility under paragraph 1 that commenced construction or modification after August 17, 1971, is subject to the requirements of this subsection.

(4) The requirements of subparagraphs d and e of paragraph 1 and paragraphs 2 and 4 of subdivision e are applicable to lignite-fired steam generating units that commenced construction or modification after December 22, 1976.

(5) Any facility covered under subsection 2 is not covered under this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25, and in subsection 2 of section 33-15-12-01.

(1) "Coal" means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American society for testing material. Designation D388-77.

(2) "Coal refuse" means waste products of coal mining, cleaning, and coal preparation operations, e.g., culm, gob, etc., containing coal, matrix material, clay, and other organic and inorganic material.

(3) "Fossil fuel" means natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

(4) "Fossil fuel-fired steam generating unit" means furnace or boiler used in the process of burning fossil fuel for the purpose of producing steam by heat transfer.

(5) "Fossil fuel-fired and wood residue-fired steam generating unit" means a furnace or boiler used in the process of burning fossil fuel and wood residue for the purpose of producing steam by heat transfer.

(6) "Wood residue" means bark, sawdust, slabs, chips, shavings, mill trim, and other wood products derived from wood processing and forest management operations.

c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of forty-three nanograms per joule [0.10 pounds per million Btu] heat input derived from fossil fuel or fossil fuel and wood residue.

(2) Exhibit greater than twenty percent opacity except for one 6-minute period per hour of not more than twenty-seven percent opacity.

d. Standard for sulfur dioxide.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of:

(a) Three hundred forty nanograms per joule [0.80 pounds per million Btu] heat input derived from liquid fossil fuel or liquid fossil fuel and wood residue.

(b) Five hundred twenty nanograms per joule [1.2 pound per million Btu] heat input derived from solid fossil fuel or solid fossil fuel and wood residue.

(2) When different fossil fuels are burned simultaneously in any combination, the applicable standard (in nanograms per joule) shall be determined by proration using the following formula:

$$PS_{SO_2} = \left[\frac{y(340) + z(520)}{y + z}\right]$$

where:

PS_{SO_2} = prorated standard for sulfur dioxide when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired.

y = percentage of total heat input derived from liquid fossil fuel.

z = percentage of total heat input derived from solid fossil fuel.

(3) Compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels.

e. Standard for nitrogen oxides.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which contain nitrogen oxides expressed as NO_2 in excess of:

(a) Eighty-six nanograms per joule [0.20 pound per million Btu] heat input derived from gaseous fossil fuel.

(b) One hundred twenty-nine nanograms per joule [0.30 pounds per million Btu] heat input derived from liquid fossil fuel, liquid fossil fuel and wood residue, or gaseous fossil fuel and wood residue.

(c) Three hundred nanograms per joule [0.70 pound per million Btu] heat input derived from solid fossil fuel or solid fossil fuel and wood residue (except lignite or a solid fossil fuel containing twenty-five percent by weight, or more of coal refuse).

(d) Two hundred sixty nanograms per joule [0.60 pound per million Btu] heat input derived from lignite or lignite and wood residue (except as provided under subparagraph e).

(e) Three hundred forty nanograms per joule [0.80 pound per million Btu] heat input derived from lignite which is mined in North Dakota, South Dakota, or Montana and which is burned in a cyclone-fired unit.

(2) Except as provided under paragraphs 3 and 4, when different fossil fuels are burned simultaneously in any combination, the applicable standard (in nanograms per joule) is determined by proration using the following formula:

$$PS_{NO_x} = \frac{w(260) + x(86) + y(130) + z(300)}{w + x + y + z}$$

where:

PS_{NO_x} = prorated standard for nitrogen oxides when burning different fuels simultaneously, in nanograms per joule heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired.

w = percentage of total heat input derived from lignite.

x = percentage of total heat input derived from gaseous fossil fuel.

y = percentage of total heat input derived from liquid fossil fuel.

z = percentage of total heat input derived from solid fossil fuel (except lignite).

(3) When a fossil fuel containing at least twenty-five percent, by weight, of coal refuse is burned in combination with gaseous, liquid, or other solid fossil fuel or wood residue, the standard for nitrogen oxides does not apply.

(4) Cyclone-fired units which burn fuels containing at least twenty-five percent of lignite that is mined in North Dakota, South Dakota, or Montana remain subject to subparagraph e of paragraph 1 regardless of the types of fuel burned in combination with that lignite.

f. Emission and fuel monitoring.

(1) Each owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions, and either oxygen or carbon dioxide except as provided in paragraph 2.

(2) Certain of the continuous monitoring system requirements under paragraph 1 do not apply to owners or operators under the following conditions:

(a) For a fossil fuel-fired steam generator that burns only gaseous fossil fuel, continuous monitoring systems for measuring the opacity of emissions and sulfur dioxide emissions are not required.

(b) For a fossil fuel-fired steam generator that does not use a flue gas desulfurization device, a continuous monitoring system for measuring sulfur dioxide emissions is not required if the owner or operator monitors sulfur dioxide emissions by fuel sampling and analysis under paragraph 4.

(c) Notwithstanding subdivision b of subsection 11 of section 33-15-12-01, installation of a continuous monitoring system for nitrogen oxides may be delayed until after the initial performance tests under subsection 7 of section 33-15-12-01 have been conducted. If the owner or operator demonstrates during the performance test that emissions of nitrogen oxides are less than seventy percent of the applicable standards in subdivision e, a continuous monitoring system for measuring nitrogen oxides emissions is not required. If the initial performance test results show that nitrogen oxides emissions are greater than seventy percent of the applicable standard, the owner or operator shall install a continuous monitoring system for nitrogen oxides within one year after the date of the initial performance tests under subsection 7 of section 33-15-12-01 and comply with all other applicable monitoring requirements under this subdivision.

(d) If an owner or operator does not install any continuous monitoring systems for sulfur oxides and nitrogen oxides, as provided under subparagraphs a and c or subparagraphs b and c, a continuous monitoring system for measuring either oxygen or carbon dioxide is not required.

(3) For performance evaluations under subdivision c of subsection 11 of section 33-15-12-01 and calibration checks under subdivision d of subsection 11 of section 33-15-12-01, the following procedures shall be used:

(a) ~~Reference method 3 or 3A, 6, 6A, 6B, or 6C, and 7, 7A, 7C, 7D, or 7E as applicable, must be used for conducting relative accuracy evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems. Methods 3A, 6C, and 7E must be used only at the sole discretion of the source owner or operator.~~

Methods 6, 7, and 3, as applicable, must be used for the performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems. Acceptable alternative methods for methods 6, 7, and 3 are given in paragraph 4 of subdivision g of this subsection.

(b) Sulfur dioxide or nitric oxide, as applicable, must be used for preparing calibration gas mixtures under performance specification 2 of appendix B to this chapter.

(c) For affected facilities burning fossil fuel, the span value for a continuous monitoring system measuring the opacity of emissions shall be eighty, ninety, or one hundred percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the span value shall be determined as follows:

(In parts per million

	Span value	Span value

Fossil fuel	for sulfur dioxide	for nitrogen oxides
Gas	*	500
Liquid	1,000	500
Solid	1,500	500
Combinations	1,000y+1,500z	500(x+y)+1,000z

*Not applicable.

where:

x = fraction of total heat input derived from gaseous fossil fuel.

y = fraction of total heat input derived from liquid fossil fuel.

z = fraction of total heat input derived from solid fossil fuel.

(d) All span values computed under subparagraph c for burning combinations of fossil fuels shall be rounded to the nearest five hundred parts per million.

(e) For a fossil fuel-fired steam generator that simultaneously burns fossil fuel and nonfossil fuel, the span value of all continuous monitoring systems shall be subject to the department's approval.

(4) [Reserved]

(5) For any continuous monitoring system installed under subparagraph 1, the following conversion procedures must be used to convert the continuous monitoring data into units of the applicable standards (nanograms per joule, pounds per million Btu):

(a) When a continuous monitoring system for measuring oxygen is selected, the measurement of the pollutant concentration and oxygen concentration shall each be on a consistent basis (wet or dry). Alternative procedures approved by the department shall be used when measurements are on a wet basis. When measurements are on a dry basis, the following conversion procedure shall be used:

$$E = CF\left[\frac{20.9}{20.9 - \text{percent } O_2}\right]$$

where:

E, C, F, and percent O_2, are determined under paragraph 6.

(b) When a continuous monitoring system for measuring carbon dioxide is selected, the measurements of the pollutant concentration and carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure shall be used:

$$E = CF_c\left[\frac{100}{\text{percent } CO_2}\right]$$

where:

E, C, F_c, and percent CO_2 are determined under paragraph 6.

(6) The values used in the equations under paragraph 5 are derived as follows:

(a) E = pollutant emission, ng/j [lb/million Btu].

(b) C = pollutant concentration, ng/dscm [lb/dscf], determined by multiplying the average concentration (ppm) for each one-hour period by 4.15×10^4 M ng/dscm per ppm [2.59×10^{-9} M lb/dscf per ppm], where M = pollutant molecular weight, g/g-mole [lb/lb-mole]. M = 64.07 for sulfur dioxide and 46.01 for nitrogen oxides.

(c) Percent O_2, percent CO_2 = oxygen or carbon dioxide volume (expressed as percent) determined with equipment specified under paragraph 1 of this subdivision.

(d) F, F_c = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F) and a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (F_c), respectively. Values of F and F_c are given as follows:

[1] For anthracite coal as classified according to A.S.T.M. D388-77, F = 2.723 x 10^{-7} dscm/j [10140 dscf/million Btu] and F_c = 0.532 x 10^{-7} scm CO_2/j [1980 scf CO_2/million Btu].

[2] For subbituminous and bituminous coal as classified according to A.S.T.M. D388-77, F = 2.637 x 10^{-7} dscm/j [9820 dscf/million Btu] and F_c = 0.486 x 10^{-7} scm CO_2/j [1810 scf CO_2/million Btu].

[3] For liquid fossil fuels including crude, residual, and distillate oils, F = 2.476 x 10^{-7} dscm/j [9220 dscf/million Btu] and F_c = 0.384 x 10^{-7} scm CO_2/j [1430 scf CO_2/million Btu].

[4] For gaseous fossil fuels, F = 2.347 x 10^{-7} dscm/j [8740 dscf/million Btu]. For natural gas, propane, and butane fuels, F_c = 0.279 x 10^{-7} scm CO_2/j [1040 scf CO_2/million Btu] for natural gas, 0.322 x 10^{-7} scm CO_2/j [1200 scf CO_2/million Btu] for propane, and 0.338 x 10^{-7} scm CO_2/j [1260 scf CO_2/million Btu] for butane.

[5] For bark F = 2.589 x 10^{-7} dscm/j [9,640 dscf/million Btu] and F_c = 0.500 x 10^{-7} dscm/j [1,840 dscf/million Btu]. For wood residue other than bark F = 2.492 x 10^{-7} dscm/j [9,280 dscf/million Btu] and F_c = 0.494 x 10^{-7} dscm/j [1,860 dscf/million Btu].

[6] For lignite coal as classified according to A.S.T.M. D388-77, F = 2.659 x 10^{-7} dscm/j [9900 dscf/million Btu] and F_c = 0.516 x 10^{-7} scm CO_2/j [1920 scf CO_2/million Btu].

(e) The owner or operator may use the following equations to determine an F factor (dscm/j, or dscf/million Btu) on a dry basis (if it is desired to calculate F on a wet basis, consult with the department) or F_c factor (scm CO_2/j, or scf CO_2/million Btu) on either basis in lieu of the F or F_c factors specified in subparagraph d of this paragraph:

$$F = 10^{-6}\frac{[227.2(\%H) + 95.5(\%C) + 35.6(\%S) + 8.7(\%N) - 28.7(\%O)]^{1}}{GCV} \quad \text{(metric units)}$$

$$F = 10^{6}\frac{(3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O))}{GCV} \quad \text{(English units)}$$

$$F_c = \frac{2.0 \times 10^{-5}\ (\%C)}{GCV} \quad \text{(metric units)}$$

$$F_c = \frac{321 \times 10^{3}(\%C)}{GCV} \quad \text{(English units)}$$

[1] H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined on the same basis as GCV by ultimate analysis of the fuel fired, using A.S.T.M. method D3178-74 or D3176 (solid fuels), or computed from results using A.S.T.M. methods D1137-53(75), D1945-64(76), or D1946-77 (gaseous fuels) as applicable.

[2] GCV is the gross calorific value (kj/kg, Btu/lb) of the fuel combusted, determined by the A.S.T.M. test methods D2015-77 for solid fuels and D1826-77 for gaseous fuels as applicable.

[3] For affected facilities which fire both fossil fuels and nonfossil fuels, and F or F_c value shall be subject to the department's approval.

(f) For affected facilities firing combinations of fossil fuels or fossil fuels and wood residue, the F or F_c factors determined by subparagraph d or e of this paragraph shall be prorated in accordance with the applicable formula as follows:

where:

$$F = \sum_{i=1}^{n} X_i F_i \text{ or } F_c = \sum_{i=1}^{n} X_i (F_c)_i$$

X_i = fraction of total heat input derived from each type fuel (e.g., natural gas, bituminous coal, wood residue, etc.).

F_i or $(F_c)_i$ = applicable F_c factor for each fuel type determined in accordance with subparagraph d or e.

n = number of fuels being burned in combination.

(7) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that shall be reported are defined as follows:

(a) Opacity. Excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds twenty percent opacity, except that one 6-minute average per hour of up to twenty-seven percent opacity need not be reported.

(b) Sulfur dioxide. Excess emissions for affected facilities are defined as:

[1] Any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the applicable standard under subdivision d.

(c) Nitrogen oxides. Excess emissions for affected facilities using a continuous monitoring system for measuring nitrogen oxides are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) exceed the applicable standards under subdivision e.

g. Test methods and procedures.

~~(1) The reference methods in appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standards as prescribed in subdivisions c, d, and e of this subsection as follows:~~

~~(a) Method 1 for selection of sampling site and sample traverses.~~

~~(b) Method 3 for gas analysis to be used when applying method 5, 5B, 17, 6, 7, 7A, 7C, or 7D.~~

~~(c) Method 5, 5B, or 17 for concentration of particulate matter and the associated moisture content as follows: method 5 is to be used at affected facilities without wet flue gas desulfurization (FGD) systems; method 5B is to be used only after wet flue gas desulfurization (FGD) systems; and method 17 may be used at facilities with or without wet flue gas desulfurization (FGD) provided that the stack gas temperature at the sampling location does not exceed an average temperature of one hundred degrees Celsius (320 degrees Fahrenheit). The procedures of sections 2.1 and 2.3 of method 5B may be used with method 17 only if it is used after wet flue gas desulfurization (FGD) systems. Do not use method 17 after wet flue gas desulfurization (FGD) systems if the effluent gas is saturated or laden with water droplets.~~

~~(d) Method 6 or 6C for concentration of sulfur dioxide. Method 6A may be used whenever method 6 or 6C and 3 or 3A data are used to determine the sulfur dioxide emission rate in nanograms per joule. Method 6C must be used only at the sole discretion of the source owner or operator.~~

~~(e) Method 7, 7A, 7C, 7D, or 7E for concentration of nitrogen oxide. Method 7E shall be used only at the sole discretion of the source owner or operator.~~

~~(2) For method 5, 5B, or 17, method 1 shall be used to select the sampling site and the~~

~~number of traverse sampling points. The sampling time for each run shall be at least sixty minutes, and the minimum sampling volume shall be 0.85 dry cubic meters of standard conditions (30 dscf), except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the department. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature of one hundred sixty plus or minus fourteen degrees Celsius (320 ± 25 degrees Fahrenheit).~~

~~(3) For methods 6 and 7, 7A, 7C, or 7D the sampling site shall be the same as that selected for method 5, 5B, or 17. The sampling point in the duct shall be at the centroid of the cross section or at a point no closer to the walls than one meter (3.28 ft). For methods 6 and 7C or 7D, the sample must be extracted at a constant volumetric flow rate.~~

~~(4) For method 6, the minimum sampling time must be twenty minutes and the minimum sampling volume 0.02 dry cubic meter at standard conditions (0.71 dscf) for each sample. The arithmetic mean of two samples shall constitute one run. Samples must be taken at approximately thirty-minute intervals.~~

~~(5) For method 7 or 7A, each run shall consist of at least four grab samples taken at approximately fifteen-minute intervals. The arithmetic mean of the samples shall constitute the run value. For method 7C or 7D, each run shall consist of a one-hour sample.~~

~~(6) For each run using the methods specified by subparagraphs c, d, and e of paragraph 1, the emissions expressed in nanograms per joule (lb/million Btu) must be determined by the following procedure:~~

~~$E = CF \frac{20.9}{20.9 - \text{percent } O_2}$~~

~~where:~~

~~(a) E = pollutant emission ng/j (lb/million Btu).~~

~~(b) C = pollutant concentration, ng/dscm (lb/dscf), determined by method 5, 6, 6C, 7, 7A, 7C, 7D or 7E.~~

~~(c) percent O_2 = oxygen content by volume (expressed as percent), dry basis. Percent oxygen must be determined by using the integrated or grab sampling and analysis procedures of methods 3 as applicable, or by using method 3A. Method 3A shall be used only at the sole discretion of the source owner or operator. Oxygen samples must be obtained as follows:~~

~~(1) For determination of sulfur dioxide by method 6 or 6C and nitrogen oxides emissions by method 7, 7A, 7C, 7D or 7E, the oxygen sample must be obtained simultaneously at the same point in the duct. For method 7 or 7A, the oxygen samples must be obtained using the grab sampling and analysis procedures of method 3 or 3A.~~

~~(2) For determination of particulate emissions, the oxygen sample must be obtained simultaneously by traversing the duct at the same sampling location used for each run of method 5, 5B, or 17 under paragraph 2 of this subdivision. Method 1 must be used for selection of the number of <u>oxygen</u> traverse points except that no more than twelve sample points are required.~~

~~(d) F = a factor as determined in subparagraph d, e, and f of paragraph 6 of subdivision f.~~

~~(7) When combinations of fossil fuels or fossil fuel and wood residue are fired, the heat input, expressed in watts (Btu/hr), is determined during each testing period by multiplying the gross calorific value of each fuel fired (in j/kg or Btu/lb) by the rate of each fuel burned (in kg/sec or lb/hr). Gross calorific values are determined in accordance with A.S.T.M. methods D2015-77 (solid fuels), D240-76 (liquid fuels), or D1826-77 (gaseous fuels), as applicable. The method used to determine calorific value of wood residue must~~

~~be approved by the department. The owner or operator shall determine the rate of fuels burned during each testing period by suitable methods and shall confirm the rate by a material balance over the steam generation system.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Acceptable alternative methods and procedures are given in paragraph 4 of this subdivision.

(2) The owner or operator shall determine compliance with the particulate matter, sulfur dioxide, and nitrogen oxides standards in subdivisions c, d, and e of this subsection.

(a) The emission rate (E) of particulate matter, sulfur dioxide, or nitrogen oxides must be computed for each run using the following equation:

$$E = CF_d(20.9)/(20.9-\%\ O_2)$$

E = emission rate of pollutant, ng/j (lb/million Btu).

C = concentration of pollutant, ng/dscm (lb/dscf).

$\%O_2$ = oxygen concentration, percent dry basis.

F_d = factor as determined in method 19.

(b) Method 5 must be used to determine the particulate matter concentration (C) at affected facilities without wet flue-gas-desulfurization (FGD) systems and method 5B must be used to determine the particulate matter concentration (C) after FGD systems.

[1] The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meters at standard conditions [30 dscf]. The probe and filter holder heating

systems in the sampling train may be set to provide a gas temperature no greater than one hundred sixty plus or minus fourteen degrees Celsius [320 + 25 degrees Fahrenheit].

[2] The emission rate correction factor, integrated or grab sampling and analysis procedure of method 3 must be used to determine the oxygen concentration (%O_2). The oxygen sample must be obtained simultaneously with, and at the same traverse points as, the particulate sample. If the grab sampling procedure is used, the oxygen concentration for the run must be the arithmetic mean of all the individual oxygen sample concentrations at each traverse point.

[3] If the particulate run has more than twelve traverse points, the oxygen traverse points may be reduced to twelve provided that method 1 is used to locate the twelve oxygen traverse points.

(c) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(d) Method 6 must be used to determine the sulfur dioxide concentration.

[1] The sampling site must be the same as that selected for the particulate sample. The sampling location in the duct must be at the centroid of the cross section or at a point no closer to the walls than one meter [3.28 feet]. The sampling time and sample volume for each sample run must be at least twenty minutes and 0.020 dry cubic meters at standard conditions [0.71 dscf]. Two samples must be taken during a one-hour period, with each sampling taken within a thirty-minute interval.

[2] The emission rate correction factor, integrated sampling and analysis procedure of method 3 must be used

to determine the oxygen concentration ($\%O_2$). The oxygen sample must be taken simultaneously with, and at the same point as, the sulfur dioxide sample. The sulfur dioxide emission rate must be computed for each pair of sulfur dioxide and oxygen samples. The sulfur dioxide emission rate (E) for each run must be the arithmetic mean of the results of the two pairs of samples.

(e) Method 7 must be used to determine the nitrogen oxides concentration.

[1] The sampling site and location must be the same as for the sulfur dioxide sample. Each run must consist of four grab samples, which each sample taken at about fifteen-minute intervals.

[2] For each nitrogen oxides sample, the emission rate correction factor, grab sampling, and analysis procedure of method 3 must be used to determine the oxygen concentration ($\%O_2$). The sample must be taken simultaneously with, and at the same point as, the nitrogen oxides sample.

[3] The nitrogen oxides emission rate must be computed for each pair of nitrogen oxides and oxygen samples. The nitrogen oxides emission rate (E) for each run must be the arithmetic mean of the results of the four pairs of samples.

(3) When combinations of fossil fuels or fossil fuel and wood residue are fired, the owner or operator (in order to compute the prorated standards as shown in paragraph 2 of subdivision d and paragraph 2 of subdivision e shall determine the percentage (w, x, y, or z) of the total heat input derived from each type of fuel as follows:

(a) The heat input rate of each fuel must be determined by multiplying the gross calorific value of each fuel fired by the rate of each fuel burned.

(b) A.S.T.M. methods D 2015-77 (solid fuels), D 240-76 (liquid fuels), or D 1826-77 (gaseous fuels) must be used to determine the gross calorific values of the fuels. The method used to determine the calorific value of wood residue must be approved by the department.

(c) Suitable methods must be used to determine the rate of each fuel burned during each test period, and a material balance over the steam generating system must be used to confirm the rate.

(4) The owner or operator may use the following alternatives to the reference methods and procedures in this subdivision or in other subdivisions as specified:

(a) The emission rate (E) of particulate matter, sulfur dioxide, and nitrogen oxides may be determined by using the F_c factor, provided that the following procedure is used:

[1] The emission rate (E) must be computed using the following equation:

$$E = C\, F_c\, (100/\%CO_2)$$

where:

E = emission rate of pollutant, ng/J (lb/million Btu).

C = concentration of pollutant, ng/dscm (lb/dscf).

$\%CO_2$ = carbon dioxide concentration, percent dry basis.

F_c = factor as determined in appropriate sections of method 19.

[2] If and only if the average F_c factor in method 19 is used to calculate E and either E is from 0.97 to 1.00 of the emission standard or the relative accuracy of a continuous emission monitoring system is from seventeen to twenty percent, then

three runs of method 3 must be used to determine the oxygen and carbon dioxide concentration according to the procedures in item 2 of subparagraphs b, d, and e of paragraph 2 of this subdivision. If F_o (average of three runs), as calculated from the equation in method 3, is more than plus or minus three percent than the average F_o value, as determined from the average values of F_d and F_c in method 19, i.e., $F_{oa} = 0.209 (F_{da}/F_{ca})$, then the following procedure must be followed:

[a] When F_o is less than 0.97 F_{oa}, then E must be increased by that proportion under 0.97 F_{oa}, e.g., if F_o is 0.95 F_{oa}, E must be increased by two percent. This recalculated value must be used to determine compliance with the emission standard.

[b] When F_o is less than 0.97 F_{oa} and when the average difference (d) between the continuous monitor minus the reference methods is negative, then E must be increased by that portion under 0.97 F_{oa}, e.g., if F_o is 0.95 F_{oa}, E must be increased by two percent. This recalculated value must be used to determine compliance with the relative accuracy specification.

[c] When F_o is greater than 1.03 F_{oa} and when the average difference d is positive, then E must be decreased by that proportion over 1.03 F_{oa}, e.g., if F_o is 1.05 F_{oa}, E must be decreased by two percent. This recalculated value must be used to determine compliance with the relative accuracy specification.

(b) For method 5 or 5B, method 17 may be used at facilities with or without wet flue-gas-desulfurization (FGD) systems if the stack gas temperature at the sampling location does not exceed an average temperature of one hundred sixty degrees Celsius [320 degrees Fahrenheit]. The procedur of sections 2.1 and 2.3 of method 5B may be used with method 19 only if it is used after wet flue-gas-desulfurization (FGD) systems. Method 17 may not be used after wet flue-gas-desulfurization (FGD) systems if the effluent gas is saturated or laden with water droplets.

(c) Particulate matter and sulfur dioxide may be determined simultaneously with the method 5 train provided that the following changes are made:

[1] The filter and impinger apparatus in sections 2.1.5 and 2.1.6 of method 8 is used in place of the condenser (section 2.1.7) of method 5.

[2] All applicable procedures in method 8 for the determination of sulfur dioxide (including moisture) are used.

(d) For method 6, method 6C may be used. Method 6A may also be used whenever method 6 and 3 data are specified to determine the sulfur dioxide emission rate, under the conditions in subparagraph a of paragraph 4 of this subdivision.

(e) For method 7, method 7A, 7C, 7D, or 7E may be used. If method 7C, 7D, or 7E is used, the sampling time for each run must be at least one hour and the integrated sampling approach must be used to determine the oxygen concentration ($\%O_2$) for the emission rate correction factor.

(f) For method 3, method 3A may be used.

2. Standards of performance of electric utility steam generating units.

a. Applicability and designation of affected facility.

(1) The affected facility to which this subsection applies is each electric utility steam generating unit:

(a) That is capable of combusting more than seventy-three megawatts [250 million Btu/hr] heat input of fossil fuel (either alone or in combination with any other fuel); and

(b) For which construction or modification is commenced after September 18, 1978.

(2) This subsection applies to electric utility combined cycle gas turbines that are capable of combusting more than seventy-three megawatts [250 million Btu/hour] heat input of fossil fuel in the steam generator. Only emissions resulting from combustion of fuels in the steam generating unit are subject to this subsection.

(3) Any change in an existing fossil-fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels, shall not bring that unit under the applicability of this subsection.

(4) Any change in an existing steam generating unit originally designed to fire gaseous or liquid fossil fuels, to accommodate the use of any other fuel (fossil or nonfossil) shall not bring that unit under the applicability of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Anthracite" means coal that is classified as anthracite according to the American society of testing and materials' standard specification for classification of coals by rank D388-77.

(2) "Available purchase power" means the lesser of the following:

(a) The sum of available system capacity in all neighboring companies.

(b) The sum of the rated capacities of the power interconnection devices between the principal company and all neighboring companies, minus the sum of the electric power load on these interconnections.

(c) The rated capacity of the power transmission lines between the power interconnection devices and the electric generating units (the unit in the principal company that has the malfunctioning flue gas desulfurization system and the units in the neighboring company supply replacement electrical power) less the electric power load on these transmission lines.

(3) "Available system capacity" means the capacity determined by subtracting the system load and the system emergency reserves from the net system capacity.

(4) "Boiler operating day" means a twenty-four-hour period during which fossil fuel is combusted in a steam generating unit for the entire twenty-four hours.

(5) "Coal refuse" means waste products of coal mining, physical coal cleaning, and coal preparation operations, e.g., culm, gob, etc., containing coal, matrix material, clay, and other organic and inorganic material.

(6) "Combined cycle gas turbine" means a stationary turbine combustion system where heat from the turbine exhaust gases is recovered by a steam generating unit.

(7) "Commercial demonstration permit" means a permit which is issued by the administrator of the United States environmental protection agency in accordance with 40 CFR 60.45a.

(8) "Electric utility combined cycle gas turbine" means any combined cycle gas turbine used for electric generation that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than twenty-five megawatts electric output to any utility power distribution system for sale. Any steam distribution system that is constructed for the purpose of providing steam to a steam electric generator that would produce electrical power for sale is also considered in determining the electrical energy output capacity of the affected facility.

(9) "Electric utility company" means the largest interconnected entity that generates electric power for sale, e.g., a holding company with operating subsidiary companies.

(10) "Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than twenty-five megawatts electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

(11) "Emergency condition" means that period of time when:

(a) The electric generation output of an affected facility with a malfunctioning flue gas desulfurization system cannot be reduced or electrical output must be increased because:

[1] All available system capacity in the principal company interconnected with the affected facility is being operated; and

[2] All available purchase power interconnected with the affected facility is being obtained; or

(b) The electric generation demand is being shifted as quickly as possible from an affected facility with a malfunctioning flue gas desulfurization system to one or more electrical generating units held in reserve by the principal company or by a neighboring company; or

(c) An affected facility with a malfunctioning flue gas desulfurization system becomes the only available unit to maintain a part or all of the principal company's system emergency reserves and the unit is operated spinning reserve at the lowest practical electric generation load consistent with not causing significant physical damage to the unit. If the unit is operated at a higher load to meet load demand, an emergency condition would not exist unless the conditions under subparagraph a apply.

(12) "Fossil fuel" means natural gas, petroleum, coal and any form of solid, liquid, or gaseous fuels derived from such material for the purpose of creating useful heat.

(13) "Interconnected" means that two or more electric generating units are electrically tied together by a network of power transmission lines, and other power transmission equipment.

(14) "Lignite" means coal that is classified as lignite A or B according to the American society of testing and materials' standard specification for classification of coals by rank D388-77.

(15) "Neighboring company" means any one of those electric utility companies with one or more electric power interconnections to the principal company and which have geographically adjoining service areas.

(16) "Net system capacity" means the sum of the net electric generating capability (not necessarily equal to rated capacity) of all electric generating equipment owned by an electric utility company (including steam generating units, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) plus firm contractual purchases that are interconnected to the affected facility that has the malfunctioning flue gas desulfurization system. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional equipment to electric output is otherwise established by contractual arrangement.

(17) "Potential combustion concentration" means the theoretical emissions (nanograms per joule, pounds per million Btu heat input) that would result from combustion of a fuel in an uncleaned state without emission control systems and;

(a) For particulate matter is:

[1] Three thousand nanograms per joule [7.0 lb/million Btu] heat input for solid fuel; and

[2] Seventy-five nanograms per joule [0.17 lb/million Btu] heat input for liquid fuels.

(b) For sulfur dioxide is determined under paragraph 2 of subdivision h.

(c) For nitrogen oxides is:

[1] Two hundred ninety nanograms per joule [0.67 lb/million Btu] heat input for gaseous fuels;

[2] Three hundred ten nanograms per joule [0.72 lb/million Btu] heat input for liquid fuels; and

[3] Nine hundred ninety nanograms per joule [2.30 lb/million Btu] heat input for solid fuels.

(18) "Potential electric output capacity" is defined as thirty-three percent of the maximum design heat input capacity of the steam generating unit, e.g., a steam generating unit with a one hundred megawatt [340 million Btu/hr] fossil-fuel heat input capacity would have a thirty-three megawatt potential electrical output capacity. For electric utility combined cycle gas turbines the potential electrical output capacity is determined on the basis of the fossil-fuel firing capacity of the steam generator exclusive of the heat input and electrical power contribution by the gas turbine.

(19) "Principal company" means the electric utility company or companies which own the affected facility.

(20) "Resource recovery unit" means a facility that combusts more than seventy-five percent nonfossil fuel on a quarterly (calendar) heat input basis.

(21) "Solid-derived fuel" means any solid, liquid, or gaseous fuel derived from solid fuel for the purpose of creating useful heat and

includes, but is not limited to, solvent refined coal, liquefied coal, and gasified coal.

(22) "Spare fluegas desulfurization system module" means a separate system of sulfur dioxide emission control equipment capable of treating an amount of fluegas equal to the total amount of flue gas generated by an affected facility when operated at maximum capacity divided by the total number of nonspare flue gas desulfurization modules in the system.

(23) "Spinning reserve" means the sum of the unutilized net generating capability of all units of the electric utility company that are synchronized to the power distribution system and that are capable of immediately accepting additional load. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to the electric output is otherwise established by contractual arrangement.

(24) "Steam generating unit" means any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included).

(25) "Subbituminous coal" means coal that is classified as subbituminous A, B, or C according to the American society of testing and materials' standard specification for classification of coals by rank D388-77.

(26) "System emergency reserves" means an amount of electric generating capacity equivalent to the rated capacity of the single largest electric generating unit in the electric utility company (including steam generating unit, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) which is interconnected with the affected facility that is has the malfunctioning flue gas desulfurization system. The electric generating capability of equipment under multiple ownership is prorated based on ownership unless the proportional entitlement to electric output is otherwise established by contractual arrangement.

(27) "System load" means the entire electric demand of an electric utility company's service area interconnected with the affected facility that has the malfunctioning flue gas desulfurization system plus firm contractual sales to other electric utility companies. Sales to other electric utility companies, e.g., emergency power, not on a firm contractual basis may also be included in the system load when no available system capacity exists in the electric utility company to which the power is supplied for sale.

(28) "Twenty-four-hour period" means the period of time between 12:01 a.m. and 12:00 midnight.

c. Standard for particulate matter.

(1) On and after the date on which the performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of:

(a) Thirteen nanograms per joule [0.03 lb/million Btu] heat input derived from the combustion of solid, liquid, or gaseous fuel;

(b) One percent of the potential combustion concentration (ninety-nine percent reduction) when combusting solid fuel; and

(c) Thirty percent of potential combustion concentration (seventy percent reduction) when combusting liquid fuel.

(2) On and after the date the particulate matter performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than twenty percent opacity (six-minute average), except for one 6-minute period per hour of not more than twenty-seven percent opacity.

d. Standard for sulfur dioxide.

(1) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility which combusts solid fuel or solid-derived fuel, except as provided under paragraph 3, 4, 5, or 7, any gases which contain sulfur dioxide in excess of:

(a) Five hundred twenty nanograms per joule [1.20 lb/million Btu] heat input and ten percent of the potential combustion concentration (ninety percent reduction); or

(b) Thirty percent of the potential combustion concentration (seventy percent reduction), when emissions are less than two hundred sixty nanograms per joule [0.60 lb/million Btu] heat input.

(2) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility which combusts liquid or gaseous fuels (except for liquid or gaseous fuels derived from solid fuels and as provided under paragraph 7) any gases which contain sulfur dioxide in excess of:

(a) Three hundred forty nanograms per joule [0.80 lb/million Btu] heat input and ten percent of the potential combustion concentration (ninety percent reduction); or

(b) One hundred percent of the potential combustion concentration (zero percent reduction) when emissions are less than eighty-six nanograms per joule [0.20 lb/million Btu] heat input.

(3) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is complete, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any

affected facility which combusts solid solvent refined coal (SCR-I) any gases which contain sulfur dioxide in excess of five hundred twenty nanograms per joule [1.20 lb/million Btu] heat input and fifteen percent of the potential combustion concentration (eighty-five percent reduction), except as provided under paragraph 5, compliance with the emission limitation is determined on a thirty-day rolling average basis and compliance with the percent reduction requirement is determined on a twenty-four-hour basis.

(4) Sulfur dioxide emissions are limited to five hundred twenty nanograms per joule [1.20 lb/million Btu] heat input from any affected facility which:

(a) Combusts one hundred percent anthracite; and

(b) Is classified as a resource recovery facility.

(5) The emission reduction requirements under this subsection do not apply to any affected facility that is operated under a sulfur dioxide commercial demonstration permit issued by the administrator of the United States environmental protection agency.

(6) Compliance with the emission limitation and percent reduction requirements under this subdivision are both determined on a thirty-day rolling average basis except as provided under paragraph 3.

(7) When different fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:

(a) If emissions of sulfur dioxide to the atmosphere are greater than two hundred sixty nanograms per joule [0.60 lb/million Btu] heat input:

$\cancel{E_{SO_2}}\underrightarrow{E_s} = [340\ x + 520\ y]/100$

$\cancel{P_{SO_2}}\underrightarrow{\%P_s} = 10$ ~~percent~~

(b) If emissions of sulfur dioxide to the atmosphere are equal to or less than two hundred sixty nanograms per joule [0.60 lb/million Btu] heat input:

~~E_{SO_2}~~$\underline{E_S}$ = [340 x + 520 y]/100

~~P_{SO_2}~~$\underline{\%P_S}$ = [~~90~~$\underline{10}$ x + ~~70~~$\underline{30}$ y]/100

where:

~~E_{SO_2}~~ $\underline{E_S \text{ is}}$ the prorated sulfur dioxide emission limit (ng/j heat input),

~~P_{SO_2}~~ $\underline{\%P_S \text{ is}}$ the percentage of potential sulfur dioxide emission allowed$\underline{.}$ ~~(percent reduction required = 100-P_{SO_2}).~~

x = the percentage of total heat input derived from the combustion of liquid or gaseous fuels (excluding solid-derived fuels).

y = the percentage of total heat input derived from the combustion of solid fuel (including solid-derived fuels).

e. Standard for nitrogen oxides.

(1) On and after the date on which the initial performance test required to be conducted under subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility, except as provided under paragraph 2, any gases which contain nitrogen oxides in excess of the following emission limits based on a thirty-day rolling average.

(a) Nitrogen oxide emission limits.

Fuel Type	Emission limit ng/j heat input	(lb/million BTU)
Gaseous Fuels:		
Coal-derived fuels	210	(0.50)
All other fuels.	86	(0.20)
Liquid Fuels:		
Coal-derived fuels	210	(0.50)
Shale oil.	210	(0.50)
All other fuels.	130	(0.30)

Solid Fuels:		
Coal-derived fuels	210	(0.50)
Any fuel containing more than 25%, by weight, coal refuse	Exempt from NO_2 standards and NO_2 monitoring requirements	
Any fuel containing more than 25%, by weight, lignite if the lignite is mined in North Dakota, South Dakota, or Montana, and is combusted in a slag tap furnace[1]	340	(0.80)
Any fuel containing more than 25%, by weight, lignite not subject to the 340 ng/J heat input emission limit[1]		
Lignite not subject to the 340 ng/J heat input emission limit	260	(0.60)
Subbitumninous coal	210	(0.50)
Bitumninous coal	260	(0.60)
Anthracite coal	260	(0.60)
All other fuels	260	(0.60)

[1] Any fuel containing less than 25%, by weight, lignite is not prorated, but its percentage is added to the percentage of the predominant fuel.

(b) Nitrogen oxide reduction requirements.

Fuel type	Percent reduction of potential combustion concentration
Gaseous fuels	25%
Liquid fuels	30%
Solid fuels	65%

(2) The emission limitations under subparagraph a do not apply to any affected facility which is combusting coal-derived liquid fuel and is operating under a commercial demonstration permit issued by the administrator of the United States environmental protection agency.

(3) When two or more fuels are combusted simultaneously, the applicable standard is determined by proration using the following formula:

$E_{\cancel{NO_2}}E_{\cancel{n}} = [86w + 130x + 210y + 260z \underline{+ 340v}]/100$

where:

$E_{\cancel{NO_2}}E_{\cancel{n}}$ = the applicable standard for nitrogen oxides when multiple fuels are combusted simultaneously (ng/j heat input).

w = the percentage of total heat input derived from the combustion of fuels subject to the eighty-sixnanograms per joule heat input standard.

x = the percentage of total heat input derived from the combustion of fuels subject to the one hundred thirty nanograms per joule heat input standard.

y = the percentage of total heat input derived from the combustion of fuels subject to the two hundred ten nanograms per joule heat input standard.

z = the percentage of total heat input derived from the combustion of fuels subject to the two hundred sixty nanograms per joule heat input standard.

v = the percentage of total heat input delivered from the combustion of fuels subject to the 340 ng/J heat input standard.

f. Compliance provisions.

(1) Compliance with the particulate matter emission limitation under subparagraph a of paragraph 1 of subdivision c constitutes compliance with the percent reduction requirements for particulate matter under subparagraphs b and c of paragraph 1 of subdivision c.

(2) Compliance with the nitrogen oxides emission limitation under paragraph 1 of subdivision e constitutes compliance with the percent reduction requirements under subparagraph b of paragraph 1 of subdivision e.

(3) The particulate matter emission standards under subdivision c and the nitrogen oxides emission standards under subdivision e apply

at all times except during periods of startup, shutdown, or malfunction. The sulfur dioxide emission standards under subdivision d apply at all times except during periods of startup, shutdown, or when both emergency conditions exist and the procedures under paragraph 4 are implemented.

(4) During emergency conditions in the principal company, an affected facility with a malfunctioning flue gas desulfurization system may be operated if sulfur dioxide emissions are minimized by:

   (a) Operating all operable flue gas desulfurization system modules, and bringing back into operation any malfunctioned module as soon as repairs are completed.

   (b) Bypassing flue gases around only those flue gas desulfurization system modules that have been taken out of operation because they were incapable of any sulfur dioxide emission reduction or which would have suffered significant physical damage if they had remained in operation.

   (c) Designing, constructing, and operating a spare flue gas desulfurization system module for an affected facility larger than three hundred sixty-five megawatts [1250 million Btu/hr] heat input (approximately one hundred twenty-five megawatts electrical output capacity). The department may at its discretion require the owner or operator within sixty days of notification to demonstrate spare module capability. To demonstrate this capability, the owner or operator must demonstrate compliance with the appropriate requirements under paragraphs 1, 2, 4, and 7 of subdivision d for any period of operation lasting from twenty-four hours to thirty days when:

      [1] Any one flue gas desulfurization module is not operated;

      [2] The affected facility is operating at the maximum heat input rate;

      [3] The fuel fired during the twenty-four-hour to thirty-day period is

representative of the type and average sulfur content of fuel used over a typical thirty-day period; and

[4] The owner or operator has given the department at least thirty days' notice of the date and period of time over which the demonstration will be performed.

(5) After the initial performance test required under subsection 7 of section 33-15-12-01, compliance with the sulfur dioxide emission limitations and percentage reduction requirements under subdivision d and the nitrogen oxides emission limitations under subdivision c is based on the average emission rate for thirty successive boiler operating days. A separate performance evaluation based on continuous emission monitoring data must be completed at the end of each boiler operating day after the initial performance test, and a new thirty-day average emission rate for both sulfur dioxide and nitrogen oxides and a new percent reduction for sulfur dioxide are calculated to show compliance with the standards.

(6) For the initial performance test required under subsection 7 of section 33-15-12-01, compliance with the sulfur dioxide emission limitations and percent reduction requirements under subdivision d and the nitrogen oxides emission limitation under subdivision e is based on the average emission rates for sulfur dioxide, nitrogen oxides, and percent reduction for sulfur dioxide for the first thirty successive boiler operating days. The initial performance test is the only test in which at least thirty days' prior notice is required unless otherwise specified by the department. The initial performance test is to be scheduled so that the first boiler operating day of the thirty successive boiler operating days is completed within sixty days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup of the facility.

(7) Compliance is determined by calculating the arithmetic average of all hourly emission rates for sulfur dioxide and nitrogen oxide

for the thirty successive boiler operating days, except for data obtained during startup, shutdown, malfunction (nitrogen oxide only), or emergency conditions (sulfur dioxide only). Compliance with the percentage reduction requirements for sulfur dioxide is determined based on the average inlet and average outlet sulfur dioxide emission rates for the thirty successive boiler operating days.

(8) If an owner or operator has not obtained the minimum quantity of emission data as required under subdivision g, compliance of the affected facility with the emission requirements under subdivisions d and e for the day on which the thirty-day period ends may be determined by the department by following the applicable procedures in section~~s~~ ~~6.0 and~~ 7.0 of ~~reference~~ method 19.

g. Emission monitoring.

(1) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring the opacity of emissions discharged to the atmosphere, except where gaseous fuel is the only fuel combusted. If opacity interference due to water droplets exists in the stack, e.g., from the use of a flue gas desulfurization system, the opacity is monitored upstream of the interference (at the inlet to the flue gas desulfurization system). If opacity interference is experienced at all locations (both at the inlet and outlet of the sulfur dioxide control system), alternate parameters indicative of the particulate matter control system's performance are monitored (subject to the approval of the department).

(2) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring sulfur dioxide emissions, except where natural gas is the only fuel combusted, as follows:

(a) Sulfur dioxide emissions are monitored at both the inlet and outlet of the sulfur dioxide control device.

(b) For a facility which qualifies under the provisions of paragraph 4 of subdivision d, sulfur dioxide emissions are only monitored as discharged to the atmosphere.

(c) An "as fired" fuel monitoring system (upstream of coal pulverizers) meeting the requirements of method 19 may be used to determine potential sulfur dioxide emissions in place of a continuous sulfur dioxide emission monitor at the inlet to the sulfur dioxide control device as required under subparagraph a.

(3) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere.

(4) The owner or operator of an affected facility shall install, calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring the oxygen or carbon dioxide content of the flue gases at each location where sulfur dioxide or nitrogen oxides emissions are monitored.

(5) The continuous monitoring systems under paragraphs 2, 3, and 4 are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, malfunction, or emergency conditions, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.

(6) ~~When emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emission data will be obtained by using other monitoring systems as approved by the department or the reference methods as described in paragraph 8 to provide emission data for a minimum of eighteen hours in at least twenty-two out of thirty successive boiler operation days.~~

<u>The owner or operator shall obtain emission data for at least eighteen hours in at least</u>

twenty-two out of thirty successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, the owner or operator shall supplement emission data with other monitoring system approved by the department and administrator or the ~~reference methods and procedures as described~~ in paragraph 8 of this subdivision.

(7) The one-hour averages required under subdivision h of subsection 11 of section 33-15-12-01 are expressed in nanograms per joule [lb/million Btu] heat input and used to calculate the average emission rates under subdivision f. The one-hour averages are calculated using the data points required under subdivision h of subsection 11 of section 33-15-12-01. At least two data points must be used to calculate the one-hour average.

(8) ~~Reference methods used to supplement continuous emission monitoring system data to meet the minimum data requirements in paragraph 6 will be used as specified below or otherwise approved by the department.~~

~~(a) Method 3 or 3A, 6 or 6C, and 7, 7A, 7C, 7D, or 7E as applicable, are used. Method 6A or 6B may be used whenever method 6 and 3 data are required to determine the sulfur dioxide emission rate in nanograms per joule. Method 3A, 6C, and 7E are used only at the sole discretion of the source owner or operator. The sampling locations are the same as those specified for the continuous emission monitoring system.~~

~~(b) For method 6 or 6A, the minimum sampling is twenty minutes and the minimum sampling volume is 0.02 dry cubic meter at standard conditions (0.71 dscf) for each sample. Samples are collected at approximately sixty-minute intervals. Each sample represents a one-hour average. Method 6B shall be operated for twenty-four hours per sample, and the minimum sample volume is 0.02 dry cubic meter at standard conditions (0.71 dscf) for each sample. Each method 6B sample represents twenty-four 1-hour averages.~~

~~(c) For method 7 or 7A, samples are taken at approximately thirty-minute intervals. The arithmetic average of these two consecutive samples represents a one-hour average. For method 7C or 7D, each run shall consist of a one-hour sample.~~

~~(d) For method 3, the oxygen or carbon dioxide sample is to be taken for each hour when continuous sulfur dioxide and nitrogen oxide data are taken or when methods 6 or 6C and 7, 7A, 7C, 7D, or 7E are required. Each sample must be taken for a minimum of thirty minutes in each hour using the integrated bag method specified in method 3. Each sample represents a one-hour average.~~

~~(e) For each one-hour average, the emissions expressed in nanograms per joules (lb/million Btu) heat input are determined and used as needed to achieve the minimum data requirements of paragraph 6.~~

~~(f) The following procedures are used to conduct monitoring system performance evaluations under subdivision c and calibration checks under subdivision d of subsection 11 of section 33-15-12-01.~~

~~(1) Methods 3 or 3A, 6, 6A, 6B or 6C, 7, 7A, 7C, 7D, or 7E, as applicable, are used for conducting relative accuracy evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems. Methods 3A, 6C, and 7E are used only at the sole discretion of the source owner or operator.~~

~~(2) Sulfur dioxide or nitrogen oxides, as applicable, is used for preparing calibration gas mixtures under performance specification 2 of appendix B to this chapter.~~

When it becomes necessary to supplement continuous monitoring system data to meet the minimum data requirements in paragraph 6 of this subdivision, the owner or operator shall use the reference methods and procedures as specified in this paragraph. Acceptable alternative methods and procedures are given in paragraph 7 of this subdivision.

(a) Method 6 must be used to determine the sulfur dioxide concentration at the same location as the sulfur dioxide monitor. Samples must be taken at sixty-minute intervals. The sampling time and sample volume for each sample must be at least twenty minutes and 0.020 dry cubic meter at standard condition [0.71 dscf]. Each sample represents a one-hour average.

(b) Method 7 must be used to determine the nitrogen oxides concentration at the same location as the nitrogen oxides monitor. Samples must be taken at thirty-minute intervals. The arithmetic average of two consecutive samples represents a one-hour average.

(c) The emission rate correction factor, integrated bag sampling, and analysis procedure for method 3 must be used to determine the oxygen or carbon dioxide concentration at the same location as the oxygen or carbon dioxide monitor. Samples must be taken for at least thirty minutes in each hour. Each sample represents a one-hour average.

(d) The procedures in method 19 must be used to compute each one-hour average concentration in nanograms per joule [lb/million Btu] heat input.

(9) The owner or operator shall use methods and procedures in this paragraph to conduct monitoring system performance evaluations under subdivision c of subsection 11 of section 33-15-12-01 and calibration checks under subdivision d of subsection 11 of section 33-15-12-01. Acceptable alternative methods and procedures are given in paragraph 10 of this subdivision.

(a) Methods 6, 7, and 3, as applicable, must be used to determine oxygen, sulfur dioxide, and nitrogen oxides concentrations.

(b) Sulfur dioxide or nitrogen oxides (NO), as applicable, must be used for preparing the calibration gas mixtures (in N_2, as applicable) under performance specification 2 of appendix B of this chapter.

~~(3)~~ (c) For affected facilities burning only fossil fuel, the span value for a continuous monitoring system for measuring opacity is between sixty and eighty percent and for a continuous monitoring system measuring nitrogen oxides is determined as follows:

Fossil fuel	Span value for nitrogen oxides (ppm)
Gas	500
Liquid.	500
Solid	1000
Combination	500 (x+y) +1000z

where:

x = the fraction of total heat input derived from gaseous fossil fuel.

y = the fraction of total heat input derived from liquid fossil fuel.

z = the fraction of total heat input derived from solid fossil fuel.

~~(4)~~ (d) All span values computed under ~~item 3~~ subparagraph c for burning combinations of fossil fuels are rounded to the nearest five hundred parts per million.

~~(5)~~ (e) For affected facilities burning fossil fuel, alone or in combination with nonfossil fuel, the span value of the sulfur dioxide continuous monitoring system at the inlet to the sulfur dioxide control device is one hundred twenty-five percent of the maximum estimated hourly potential emissions of the fuel fired, and the outlet of the sulfur dioxide control device is fifty percent of maximum estimated hourly potential emissions of fuel fired.

(10) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision:

(1) For method 6, method 6A or 6B (whenever methods 6 and 3 data are used) or 6C may be used. Each method 6B sample obtained over twenty-four hours represents twenty-four one-hour averages. Each method 6A or 6B is used under paragraph 9 of this subdivision, the conditions under subparagraph a of paragraph 4 of subdivision g apply; these conditions do not apply under paragraph 8 of this subdivision.

(2) For method 7, method 7A, 7C, 7D, or 7E may be used. If method 7C, 7D, or 7E is used, the sampling time for each run shall be one hour.

(3) For method 3, method 3A may be used if the sampling time is one hour.

h. Compliance determination ~~procedures and methods.~~ test methods and procedures.

~~(1) The following procedures and reference methods are used to determine compliance with the standards for particulate matter under subdivision c.~~

~~(a) Method 3 is used for gas analysis when applying method 5, 5B, or 17.~~

~~(b) Method 5, 5B, or 17 is used for determining particulate matter emissions and associated moisture content as follows: method 5 is to be used at affected facilities without wet flue gas desulfurization (FGD) systems; method 5B is to be used only after wet flue gas desulfurization (FGD) systems provided that the stack gas temperature at the sampling location does not exceed a temperature of one hundred sixty degrees Celsius (320 degrees Fahrenheit). The procedures of sections 2.1 and 2.3 of method 5B may be used in method 17 only if it is used after wet flue gas desulfurization (FGD) systems. Do not use method 17 after wet flue gas desulfurization (FGD) systems if the effluent is saturated or laden with water droplets.~~

~~(c) For method 5, 5B, or 17, method 1 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least one hundred twenty minutes and the minimum sampling volume is 1.7 dry cubic meter at standard conditions (60 dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the department.~~

~~(d) For method 5 or 5B the probe and filter holder heating system in the sampling train is set to provide an average gas temperature of one hundred sixty degrees centigrade (320 degrees Fahrenheit).~~

~~(e) For determination of particulate emissions, the oxygen or carbon dioxide sample is obtained simultaneously with each run of method 5, 5B, or 17 by traversing the duct at the same sampling location. Method 1 is used for selection of the number of oxygen or carbon dioxide traverse points except that no more than twelve sample points are required.~~

~~(f) For each run using method 5, 5B, or 17, the emission rate expressed in nanograms per joule heat input is determined using the oxygen or carbon dioxide measurements and particulate matter measurements obtained under this subdivision, the dry basis~~ F_c ~~factor and the dry basis emission rate calculation procedure contained in method 19 (appendix A).~~

~~(2) The following procedures and methods are used to determine compliance with the sulfur dioxide standards under subdivision d.~~

~~(a) Determine the percent of potential combustion concentration (percent PCC) emitted to the atmosphere as follows:~~

~~[1] Fuel pretreatment (%~~ R_f~~): Determine the percent reduction achieved by any fuel pretreatment using the procedures in method 19 (appendix A). Calculate the average percent reduction for fuel pretreatment on a quarterly basis using fuel analysis data. The determination of percent~~

~~R_f to calculate the percent of potential combustion concentration emitted to the atmosphere is optional. For purposes of determining compliance with any percent reduction requirements under subdivision d, any reduction in potential sulfur dioxide emissions resulting from the following processes may be credited:~~

~~(a) Fuel pretreatment (physical coal cleaning, hydrodesulfurization of fuel oil, etc.).~~

~~(b) Coal pulverizers.~~

~~(c) Bottom and fly ash interactions.~~

~~(2) Sulfur dioxide control system (% R_g). Determine the percent sulfur dioxide reduction achieved by any sulfur dioxide control system using emission rates measured before and after the control system, following the procedures in method 19 appendix A), or, a combination of an "as fired" fuel monitor and emission rates measured after the control system, following the procedures in method 19. When the "as fired" fuel monitor is used, the percent reduction is calculated using the average emission rate from the sulfur dioxide control device and the average sulfur dioxide input rate from the "as fired" fuel analysis for thirty successive boiler operating days.~~

~~(3) Overall percent reduction (% R_o). Determine the overall percent reduction using the results obtained in items 1 and 2 following the procedures in method 19 appendix A). Results are calculated for each thirty-day period using the quarterly average percent sulfur reduction determined for fuel pretreatment from the previous quarter and a sulfur dioxide control system for each thirty-day period in the current quarter.~~

~~(4) Percent emitted (% PCC). Calculate the percent of potential combustion concentration emitted to the atmosphere using the following equation: Percent PCC = 100-Percent R_o.~~

~~(b) Determine the sulfur dioxide emission rates following the procedures in method 19 (appendix A).~~

~~(3) The procedures and methods outlined in method 19 (appendix A) are used in conjunction with the thirty-day nitrogen oxides emission data collected under subdivision h to determine compliance with the applicable nitrogen oxides standard under subdivision e.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the methods in appendix A of this chapter or the methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Subdivision f of subsection 7 of section 33-15-12-01 does not apply to this subdivision for sulfur dioxide or nitrogen oxide. Acceptable alternative methods are given in paragraph 5 of this subdivision.

(2) The owner or operator shall determine compliance with the particulate matter standards in subdivision c of this subsection as follows:

(a) The dry basis F factor (O_2) procedures in method 19 must be used to compute the emission rate of particulate matter.

(b) For the particulate matter concentration, method 5 must be used at affected facilities without wet flue-gas-desulfurization (FGD) systems and method 5B must be used after wet flue-gas-desulfurization (FGD) systems.

[1] The sampling time and sample volume for each run must be at least one hundred twenty minutes and 1.70 dry cubic meter at standard condition [60 dscf]. The probe and filter

holder heating system in the sampling train may be set to provide an average gas temperature of no greater than one hundred sixty plus or minus fourteen degrees Celsius [320+25 degees Fahrenheit].

[2] For each particulate run, the emission rate correction factor, integrated or grab sampling and analysis procedures of method 3 must be used to determine the oxygen concentration. The oxygen sample must be obtained simultaneously with, and at the same traverse points as, the particulate run. If the particulate run has more than twelve traverse points, the oxygen traverse points may be reduced to twelve provided that method 1 is used to locate the twelve oxygen traverse points. If the grab sampling procedure is used, the oxygen concentration for the run must be the arithmetic mean of all the individual oxygen concentrations at each traverse point.

(c) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(3) The owner or operator shall determine compliance with the sulfur dioxide standards in subdivision d of this subsection as follows:

(a) The percent of potential sulfur dioxide emissions ($\%P_s$) to the atmosphere must be computed using the following equation:

$$\%P_s = [(100-\%R_f)(100-\%R_g)]/100$$

where:

$\%P_s$ = percent of potential SO_2 emissions, percent.

$\%R_f$ = percent reduction from fuel pretreatment, percent.

$\%R_g$ = percent reduction by SO_2 control system, percent.

(b) The procedures in method 19 may be used to determine percent reduction ($\%R_f$) of sulfur by such processes as fuel pretreatment (physical coal cleaning, hydrodesulfurization of fuel oil, etc.), coal pulverizers, and bottom and fly ash interactions. This determination is optional.

(c) The procedures in method 19 must be used to determine the percent sulfur dioxide reduction ($\%R_s$) of any sulfur dioxide control system. Alternatively, a combination of an "as fired" fuel monitor and emission rates measured after the control system, following the procedures in method 19, may be used if the percent reduction is calculated using the average emission average sulfur dioxide input rate from the "as fired" fuel analysis for thirty successive boiler operating days.

(d) The appropriate procedures in method 19 must be used to determine the emission rate.

(e) The continuous monitoring system in paragraphs 2 and 4 of subdivision g of this subsection must be used to determine the concentrations of sulfur dioxide and carbon dioxide or oxygen.

(4) The owner or operator shall determine compliance with the nitrogen oxide standard in subdivision d of this subsection as follows:

(a) The appropriate procedures in method 19 must be used to determine the emission rate of nitrogen oxides.

(b) The continuous monitoring system in paragraphs 3 and 4 of subdivision g of this subsection must be used to determine the concentrations of nitrogen oxide and carbon dioxide or oxygen.

(5) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision:

(a) For method 5 or 5B, method 17 may used at facilities with or without wet flue-gas-desulfurization (FGD) systems if the stack temperature at the sampling location does not exceed an average temperature of one hundred sixty degrees Celsius [320 degrees Fahrenheit]. The procedures of sections 2.1 and 2.3 of method 5B may be used in method 17 only if it is used after wet flue-gas-desulfurization (FGD) systems. Method 17 may not be used after wet flue-gas-desulfurization (FGD) systems if the effluent is saturated or laden with water droplets.

(b) The F_c factor (CO_2) procedures in method 19 may be used to compute the emission rate of particulate matter under the stipulations of subparagraph a of paragraph 4 of subdivision g of subsection 1. The carbon dioxide must be determined in the same manner as the oxygen concentration.

~~(4)~~ (6) Electric utility combined cycle gas turbines are performance tested for particulate matter, sulfur dioxide, and nitrogen oxides using the procedures of method 19 (appendix A). The sulfur dioxide and nitrogen oxides emission rates from the gas turbine used in method 19 calculations are determined when the gas turbine is performance tested under subsection 21. The potential uncontrolled particulate matter emission rate from a gas turbine is defined as seventeen nanograms per joule [0.04 lb/million Btu] heat input.

i. Reporting requirements.

(1) For sulfur dioxide, nitrogen oxides, and particulate matter emissions, the performance test data from the initial performance test and from the performance evaluation of the continuous monitors (including the transmissometer) are submitted to the department.

(2) For sulfur dioxide and nitrogen oxides the following information is reported to the department for each twenty-four-hour period.

(a) Calendar date.

(b) The average sulfur dioxide and nitrogen oxide emission rates (nanogram per joule or pound per million British thermal units) for each thirty successive boiler operating days, ending with the last thirty-day period in the quarter; reasons for noncompliance with the emission standards; and description of corrective actions taken.

(c) Percent reduction of the potential combustion concentration of sulfur dioxide for each thirty successive boiler operating days, ending with the last thirty-day period in the quarter; reasons for noncompliance with the standard; and description of corrective actions taken.

(d) Identification of the boiler operating days for which pollutant or diluent data have not been obtained by an approved method for at least eighteen hours of operation of the facility; justification for not obtaining sufficient data; and description of corrective actions taken.

(e) Identification of the times when emissions data have been excluded from the calculation of average emission rates because of startup, shutdown, malfunction (nitrogen oxide only), emergency conditions (sulfur dioxide only), or other reasons, and justification for excluding data for reasons other than startup, shutdown, malfunction, or emergency conditions.

(f) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(g) Identification of times when hourly averages have been obtained based on manual sampling methods.

(h) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(i) Description of any modifications to the continuous monitoring system which could affect the ability of the continuous monitoring system to comply with performance specification 2 or 3.

(3) If the minimum quantity of emission data as required by subdivision g is not obtained for

any thirty successive boiler operating days, the following information obtained under the requirements of paragraph 8 of subdivision f is reported to the department for that thirty-day period:

(a) The number of hourly averages available for outlet emission rates (n_o) and inlet emission rates (n_1) as applicable.

(b) The standard deviation of hourly averages for outlet emission rates (s_o) and inlet emission rates (s_1) as applicable.

(c) The lower confidence limit for the mean outlet emission rate (E_o*) and the upper confidence limit for the mean inlet emission rate (E_1*) as applicable.

(d) The applicable potential combustion concentration.

(e) The ratio of the upper confidence limit for the mean outlet emission rate (E_o*) and the allowable emission rate (E_{std}) as applicable.

(4) If any standards under subdivision d are exceeded during emergency conditions because of control system malfunction, the owner or operator of the affected facility shall submit a signed statement:

(a) Indicating if emergency conditions existed and requirements under paragraph 4 of subdivision f were met during each period; and

(b) Listing the following information:

[1] Time periods the emergency condition existed.

[2] Electrical output and demand on the owner's or operator's electric utility system and the affected facility.

[3] Amount of power purchased from interconnected neighboring utility companies during the emergency period.

[4] Percent reduction in emission achieved.

[5] Atmospheric emission rate (nanograms per joule) of the pollutant discharged.

[6] Actions taken to correct control system malfunction.

(5) If fuel pretreatment credit toward the sulfur dioxide emission standard under subdivision d is claimed, the owner or operator of the affected facility shall submit a signed statement:

(a) Indicating what percentage cleaning credit was taken for the calendar quarter, and whether the credit was determined in accordance with the provisions of subdivision h and method 19; and

(b) Listing the quantity, heat content, and date each pretreated fuel shipment was received during the previous quarter; the name and location of the fuel pretreatment facility; and the total quantity and total heat content of all fuels received at the affected facility during the previous quarter.

(6) For any periods for which opacity, sulfur dioxide or nitrogen oxides emissions data are not available, the owner or operator of the affected facility shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Operations of the control system and affected facility during periods of data unavailability are to be compared with operation of the control system and affected facility before and following the period of date unavailability.

(7) The owner or operator of the affected facility shall submit a signed statement indicating whether:

(a) The required continuous monitoring system calibration, span, and drift checks or other periodic audits have or have not been performed as specified.

(b) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of this part and is representative of plant performance.

(c) The minimum data requirements have or have not been met; or the minimum data requirements have not been met for errors that were unavoidable.

(d) Compliance with the standards has or has not been achieved during the reporting period.

(8) For the purposes of the reports required under subsection 6 of section 33-15-12-01, periods of excess emissions are defined as all six-minute periods during which the average opacity exceeds the applicable opacity standards under paragraph 2 of subdivision c. Opacity levels in excess of the applicable opacity standard and the date of such excesses are to be submitted to the department each calendar quarter.

(9) The owner or operator of an affected facility shall submit the written reports required under this subdivision and section 33-15-12-01 to the department for every calendar quarter. All quarterly reports must be postmarked by the thirtieth day following the end of each calendar quarter.

3. **Standards of performance for industrial-~~C~~commercial-institutional steam generating units.**

a. Applicability and delegation of authority.

(1) The affected facility to which this subsection applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than twenty-nine megawatts [100 million Btu/hr].

(2) Any affected facility meeting the applicability requirements under paragraph 1 of this subdivision and commencing construction, modification, or reconstruction after June 19, 1984, but on or before June 19, 1986, is subject to the following standards:

(a) Coal-fired affected facilities having a heat input capacity between twenty-nine and seventy-three megawatts [100 and 250 million Btu/hr], inclusive, are subject to the particulate matter and nitrogen oxides standards under this subsection.

(b) Coal-fired affected facilities having a heat input capacity greater than seventy-three megawatts [250 million Btu/hour] and meeting the applicability requirements under subsection 1 of section 33-15-12-04 (standards of performance for fossil-fuel-fired steam generators) are subject to the particulate matter and nitrogen oxides standards under this subsection and to the sulfur dioxide standards under subsection 1 of section 33-15-12-04.

(c) Oil-fired affected facilities having a heat input capacity between twenty-nine and seventy-three megawatts [100 and 250 million Btu/hr], inclusive, are subject to the nitrogen oxides standards under this subsection.

(d) Oil-fired affected facilities having a heat input capacity greater than seventy-three megawatts [250 million Btu/hour] and meeting the applicability requirements under subsection 1 of section 33-15-12-04 (standards of performance for fossil-fuel-fired steam generators) are also subject to the nitrogen oxides standards under this subsection and the particulate matter and sulfur dioxide standards under subsection 1 of section 33-15-12-04.

(3) Affected facilities which also meet the applicability requirements under subsection 8 of section 33-15-12-04 (standards of performance for petroleum refineries) are subject to the particulate matter and nitrogen oxides standards under this subsection and the sulfur dioxide standards under subsection 8 of section 33-15-12-04.

(4) Affected facilities which also meet the applicability requirements under subsection 12 of section 33-15-12-04 (standards of performance for incinerators) are subject to

the nitrogen oxides and particulate matter standards under this subsection.

(5) Steam generating units meeting the applicability requirements under subsection 2 of section 33-15-12-04 (standards of performance for electric utility steam generating units) are not subject to this subsection.

(6) Any change to an existing steam generating unit for the sole purpose of combusting gases containing TRS, as defined under paragraph 35 of subdivision b of this subsection, is not considered a modification under subsection 12 of section 33-15-12-01 and the steam generating unit is not subject to this subsection.

(7) In delegating implementation and enforcement authority to a state under section 111(c) of the Act, the following authorities shall be retained by the administrator and not transferred to a state:

(a) Paragraph 6 of subdivision e of this subsection.

(b) Paragraph 7 of subdivision e of this subsection.

(c) Subparagraph d of paragraph 1 of subdivision j of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and subsection 2 of section 33-15-12-01.

(1) "Annual capacity factor" means the ratio between the actual heat input to a steam generating unit from the fuels listed in paragraph 1 of subdivision c, paragraph 1 of subdivision d, or paragraph 1 of subdivision e, as applicable, during a calendar year and the potential heat input to the steam generating unit had it been operated for eight thousand seven hundred sixty hours during a calendar year at the maximum steady state design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility in a calendar year.

(2) "Byproduct/waste" means any liquid or gaseous substance produced at chemical manufacturing plants or petroleum refineries (except natural gas, distillate oil, or residual oil) and combusted in a steam generating unit for heat recovery or for disposal. Gaseous substances with carbon dioxide levels greater than fifty percent or carbon monoxide levels greater than ten percent are not byproduct/waste for the purposes of this subsection.

(3) "Chemical manufacturing plants" means industrial plants which are classified by the department of commerce under standard industrial classification (SIC) code 28.

(4) "Coal" means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American society of testing and materials in ASTM D388-77, standard specification for classification of coals by rank, coal refuse, and petroleum coke. Coal-derived synthetic fuels, including but not limited to solvent refined coal, gasified coal, coal-oil mixtures and coal-water mixtures, are also included in this definition for the purposes of this subsection.

(5) "Coal refuse" means any byproduct of coal mining or coal cleaning operations with an ash content greater than fifty percent, by weight, and a heating value less than thirteen thousand nine hundred kilojoules per kilogram [6,000 Btu/pound] on a dry basis.

(6) "Combined cycle system" means a system in which a separate source, such as a gas turbine, internal combustion engine, kiln, etc., provides exhaust gas to a heat recovery steam generating unit.

(7) "Conventional technology" means wet flue gas desulfurization (FGD) technology, dry FGD technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

(8) "Distillate oil" means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oils number one and two, as defined by the American society of testing and materials in ASTM D396-78, standard specifications for fuel oils.

(9) "Dry flue gas desulfurization technology" means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline slurries or solutions used in dry flue gas desulfurization technology include, but are not limited to, lime and sodium.

(10) "Duct burner" means a device that combusts fuel and that is placed in the exhaust duct from another source, such as a stationary gas turbine, internal combustion engine, kiln, etc., to allow the firing of additional fuel before the exhaust gas enters a heat recovery steam generating unit.

(11) "Emerging technology" means any sulfur dioxide control system that is not defined as a conventional technology under this subdivision, and for which the owner or operator of the facility has applied to the department and administrator and received approval to operate as an emerging technology under subparagraph d of paragraph 1 of subdivision j.

(12) "Federally enforceable" means all limitations and conditions which are enforceable by the administrator, including those requirements of 40 CFR parts 60 and 61, requirements within any applicable state implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24.

(13) "Fluidized bed combustion technology" means combustion of fuel in a bed or series of beds (including but not limited to bubbling bed units and circulating bed units) of limestone aggregate (or other sorbent materials) in which these materials are forced upward by the flow of combustion air and the gaseous products of combustion.

(14) "Fuel pretreatment" means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.

(15) "Full capacity" means operation of the steam generating unit at ninety percent or more of the maximum steady-state design heat input capacity.

(16) "Heat input" means heat derived from combustion of fuel in a steam generating unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, kilns, etc.

(17) "Heat release rate" means the steam generating unit design heat input capacity (in MW or Btu/hour) divided by the furnace volume (in cubic meters or cubic feet); the furnace volume is that volume bounded by the front furnace wall where the burner is located, the furnace side waterwall, and extending to the level just below or in front of the first row of convection pass tubes.

(18) "Heat transfer medium" means any material that is used to transfer heat from one point to another point.

(19) "High heat release rate" means a heat release rate greater than seven hundred thirty thousand joules per second-meter cubed [70,000 Btu/hr-feet^3].

(20) "Lignite" means a type of coal classified as lignite A or lignite B by the American society of testing and materials in ASTM D388-77, standard specification for classification of coals by rank.

(21) "Low heat release rate" means a heat release rate of seven hundred thirty thousand joules per second-meter cubed [70,000 Btu/hr-feet^3] or less.

(22) "Mass-feed stoker steam generating unit" means a steam generating unit where solid fuel is introduced directly into a retort or is fed directly onto a grate where it is combusted.

(23) "Maximum heat input capacity" means the ability of a steam generating unit to combust a stated maximum amount of fuel on a steady state basis, as determined by the physical design and characteristics of the steam generating unit.

(24) "Municipal-type solid waste" means refuse, more than fifty percent of which is waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustible materials, and noncombustible materials such as glass and rock.

(25) "Natural gas" means (1) a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal hydrocarbon constituent is methane; or (2) liquid petroleum gas, as defined by the American society for testing and materials in ASTM D1835-82 (standard specification for liquid petroleum gases).

(26) "Oil" means crude oil or petroleum or a liquid fuel derived from crude oil or petroleum, including distillate and residual oil.

(27) "Petroleum refinery" means industrial plants which are classified by the department of commerce under standard industrial classification (SIC) code 29.

(28) "Potential sulfur dioxide emission rate" means the theoretical sulfur dioxide emissions (nanograms per joule, pounds per million Btu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

(29) "Process heater" means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

(30) "Pulverized coal-fired steam generating unit" means a steam generating unit in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the steam generating unit where it is fired in suspension. This includes both conventional pulverized coal-fired and micropulverized coal-fired steam generating units.

(31) "Residual oil" means crude oil, fuel oils number one and two which have a nitrogen content of greater than 0.05 weight percent,

and all fuel oils number four, five, and six, as defined by the American society of testing and materials in A.S.T.M. D396-78, standard specifications for fuel oils.

(32) "Spreader stoker steam generating unit" means a steam generating unit in which solid fuel is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

(33) "Steam generating unit" means a device that combusts any fuel or byproduct/waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit which combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subsection.

(34) "Steam generating unit operating day" means a twenty-four hour period between midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire twenty-four hour period.

(35) "Total reduced sulfur (TRS)" means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide, that are released during the kraft pulping operation and measured by reference method 16.

(36) "Very low sulfur oil" means a distillate oil or residual oil that when combusted without postcombustion sulfur dioxide control has a sulfur dioxide emission rate equal to or less than one hundred thirty nanograms per joule [0.30 lb SO_2/million Btu].

(37) "Wet fuel gas desulfurization technology" means a sulfur dioxide control system that is located downstream of the steam generating unit and removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gas with an alkaline slurry or solution and forming a liquid material. This definition applies to

devices where the aqueous liquid material product of this contact is subsequently converted to other forms. Alkaline reagents used in wet flue gas desulfurization technology include, but are not limited to, lime, limestone, and sodium.

(38) "Wet scrubber system" means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of particulate matter or sulfur dioxide.

(39) "Wood" means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including, but not limited to, sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

c. Standard for sulfur dioxide.

(1) Except as provided in paragraph 2, 3, or 4 of this subdivision, on and after the date on which the performance test is completed or required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that combusts coal or oil shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of ten percent (0.10) of the potential sulfur dioxide emission rate (90 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the following formula:

$$E_s = (K_aH_a+K_bH_b)/(H_a+H_b)$$

where:

E_s is the sulfur dioxide emission limit, in nanograms per joule or pound per million Btu heat input,

K_a is 520 ng/j [or 1.2 lb/million Btu],

K_b is 340 ng/j [or 0.80 lb/million Btu],

H_a is the heat input from the combustion of coal, in joules [million Btu],

H_b is the heat input from the combustion of oil, in joules [million Btu].

Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this subdivision. No credit is provided for the heat input to the affected facility from the combustion of natural gas, wood, municipal-type solid waste, or other fuels or heat input to the affected facility from exhaust gases from another source, such as gas turbines, internal combustion engines, kilns, etc.

(2) On and after the date on which the performance test is completed or required to be completed under subsection 7 of section 33-15-12-01, whichever comes first, no owner or operator of an affected facility that combusts coal refuse alone in a fluidized bed combustion steam generating unit shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of twenty percent of the potential sulfur dioxide emission rate (80 percent reduction) and that contain sulfur dioxide in excess of five hundred twenty nanograms per joule [1.2 lb/million Btu] heat input. If coal or oil is fired with coal refuse, the affected facility is subject to paragraph 1 or 4 of this subdivision, as applicable.

(3) On and after the date on which the performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever comes first, no owner or operator of an affected facility that combusts coal or oil, either alone or in combination with any other fuel, and that uses an emerging technology for the control of sulfur dioxide emissions, shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of fifty percent of the potential sulfur dioxide emissions rate (50 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the following formula:

$$E_s=(K_cH_c+K_dH_d)/(H_c+H_d)$$

where:

E_s is the sulfur dioxide emission limit, expressed in ng/j (lb/million Btu) heat input,

K_c is 260 ng/j [0.60 lb/million Btu],

K_d is 170 ng/j [0.40 lb/million Btu],

H_c is the heat input from the combustion of coal, j [million Btu],

H_d is the heat input from the combustion of oil, j [million Btu].

Only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this subdivision. No credit is provided for the heat input to the affected facility from the combustion of natural gas, wood, municipal-type solid waste, or other fuels, or from the heat input to the affected facility from exhaust gases from another source, such as gas turbines, internal combustion engines, kilns, etc.

(4) On and after the date on which the performance test is completed or required to be completed under subsection 7 of section 33-15-12-01, whichever comes first, no owner or operator of an affected facility listed in subparagraph a, b, or c of paragraph 4 of this subdivision shall cause to be discharged into the atmosphere any gases that contain sulfur dioxide in excess of five hundred twenty nanograms per joule [1.2 lb/million Btu] heat input if the affected facility combusts coal, or one hundred thirty nanograms per joule [0.30 lb/million Btu] heat input if the affected facility combusts oil. Percent reduction requirements are not applicable to affected facilities under this paragraph:

(a) Affected facilities that have an annual capacity factor for coal and oil of thirty percent or less and are subject to an enforceable permit limiting the operation of the affected facility to an annual capacity factor for coal and oil to thirty percent or less;

(b) Affected facilities combusting coal or oil, alone or in combination with any other fuel, in a duct burner as part of a combined cycle system where thirty percent or less of the heat input to the steam generating unit is from combustion of coal and oil in the duct burner and seventy percent or more of the heat input to the steam generating unit is from the exhaust gases entering the duct burner; or

(c) Affected facilities combusting very low sulfur oil.

(5) Except as provided in paragraph 6 of this subdivision, compliance with the emission limit(s) and percent reduction requirements under this subdivision are determined on a thirty-day rolling average basis.

(6) Compliance with the emission limits under this subdivision are determined on a twenty-four-hour average basis for affected facilities which (1) have a federally enforceable permit limiting the annual capacity factor for oil to ten percent or less, (2) combust only oil which emits less than one hundred thirty nanograms per joule [0.3 lb SO_2 per million Btu], and (3) do not combust any other fuel.

(7) Except as provided in paragraph 9 of this subdivision, the sulfur dioxide emission limits and percent reduction requirements under this subdivision apply at all times, including periods of startup, shutdown, and malfunction.

(8) Reductions in the potential sulfur dioxide emission rate through fuel pretreatment are not credited toward the percent reduction requirement under paragraph 3 of this subdivision unless:

(a) Fuel pretreatment results in a fifty percent or greater reduction in potential sulfur dioxide emissions and

(b) Emissions from the pretreated fuel (without combustion or postcombustion sulfur dioxide control) are equal to or less than the emission limits specified in paragraph 3 of this subdivision.

(9) An affected facility subject to paragraph 1, 2, or 3 of this subdivision may combust very low sulfur oil or natural gas when the sulfur dioxide control system is not being operated because of malfunction or maintenance of the sulfur dioxide control system.

d. Standard for particulate matter.

(1) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility which combusts coal or combusts mixtures of coal with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(a) Twenty-two nanograms per joule [0.05 lb/million Btu] heat input;

[1] If the affected facility combusts only coal, or

[2] If the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels of ten percent or less.

(b) Forty-three nanograms per joule [0.10 lb/million Btu] heat input if the affected facility combusts coal and other fuels and has an annual capacity factor for the other fuels greater than ten percent and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than ten percent for fuels other than coal.

(c) Eighty-six nanograms per joule [0.20 lb/million Btu] heat input if the affected facility combusts coal or coal and other fuels, and

[1] Has an annual capacity factor for coal or coal and other fuels of thirty percent or less;

[2] Has a maximum heat input capacity of seventy-three megawatts [250 million Btu per hour] or less;

[3] Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor thirty percent or less for coal or coal and other solid fuels; and

[4] Construction of the affected facility commenced after June 19, 1984, and before November 25, 1986.

(2) On or after the date on which the performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that combusts mixtures of oil with other fuels shall cause to be discharged from that affected facility any gases which contain particulate matter in excess of forty-three nanograms per joule [0.10 lb/million Btu] heat input.

(3) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that combusts wood, or wood with other fuels, except coal, shall cause to be discharged from that affected facility any gases that contain particulate matter in excess of the following emission limits:

(a) Forty-three nanograms per joule [0.10 lb/million Btu] heat input if the affected facility has an annual capacity factor greater than thirty percent for wood.

(b) Eighty-six nanograms per joule [0.20 lb/million Btu] heat input if:

[1] The affected facility has an annual capacity factor of thirty percent or less for wood;

[2] Is subject to an enforceable requirement limiting operation of the affected facility to an annual capacity factor of thirty percent or less for wood; and

[3] Has a maximum heat input capacity of seventy-three megawatts [250 million Btu per hour] or less.

(4) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no

owner or operator of an affected facility that combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels, shall cause to be discharged into the atmosphere from that affected facility any gases which contain particulate matter in excess of the following emission limits:

(a) Forty-three nanograms per joule [0.10 lb/million Btu] heat input;

[1] If the affected facility combusts any municipal-type solid waste, or

[2] If the affected facility combusts municipal-type solid waste and other fuels and has an annual capacity factor for the other fuels of ten percent or less.

(b) Eighty-six nanograms per joule [0.20 lb/million Btu] heat input if the affected facility combusts municipal-type solid waste or municipal-type solid waste and other fuels; and

[1] Has an annual capacity factor for municipal-type solid waste and other fuels of thirty percent or less;

[2] Has a maximum heat input capacity of seventy-three megawatts [250 million Btu per hour] or less;

[3] Has a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor of thirty percent for municipal-type solid waste and other fuels; and

[4] Construction of the affected facility commenced after June 19, 1984, but before November 25, 1986.

(5) For the purposes of this subdivision, the annual capacity factor is determined by dividing the actual heat input to the steam generating unit during the calendar year from the combustion of coal, wood, or municipal-type solid waste, and other fuels, as applicable, by the potential heat input to the steam generating unit if the steam generating unit had been operated for eight thousand

seven hundred sixty hours at the maximum design heat input capacity.

(6) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility subject to the particulate matter emission limits under paragraph 1, 2, or 3 of this subdivision shall cause to be discharged into the atmosphere any gases which exhibit greater than twenty percent opacity [six-minute average], except for one 6-minute period per hour of not more than twenty-seven percent opacity.

(7) The particulate matter and opacity standards apply at all times, except during periods of startup, shutdown, or malfunction.

e. Standard for nitrogen oxides.

(1) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that is subject to the provisions of this subdivision and that combusts only coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides (expressed as NO_2) in excess of the following emission limits:

Fuel/steam generating unit type	Nitrogen Oxide emission limits ng/j (lb/ million Btu) (expressed as NO_2) heat input
(a) Natural gas and distillate oil, except (d):	
[1] Low heat release rate......................	43(0.10)
[2] High heat release rate.....................	86(0.20)
(b) Residual oil:	
[1] Low heat release rate......................	130(0.30)
[2] High heat release rate.....................	170(0.40)
(c) Coal:	
[1] Mass-feed stoker...........................	210(0.50)
[2] Spreader stoker and fluidized bed	

combustion	260(0.60)
[3] Pulverized coal	300(0.70)
[4] Lignite, except [5]	260(0.60)
[5] Lignite mined in North Dakota, South Dakota, or Montana and combusted in a slag tap furnace	340(0.80)
[6] Coal-derived synthetic fuels	210(0.50)
(d) Duct burner used in a combined cycle system:	
[1] Natural gas and distillate oil	86 (0.20)
[2] Residual oil	170(0.40)

(2) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts mixtures of coal, oil, or natural gas shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of a limit determined by use of the following formula:

$$E_n = [(EL_{go}H_{go})+(EL_{ro}H_{ro})+(EL_cH_c)]/(H_{go}+H_{ro}+H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/j [lb/million BTU],

EL_{go} is the appropriate emission limit from subparagraph a of paragraph 1 of this subdivision for combustion of natural gas or distillate oil, ng/j [lb/million Btu],

H_{go} is the heat input from combustion of natural gas or distillate oil,

EL_{ro} is the appropriate emission limit from subparagraph b of paragraph 1 of this subdivision for combustion of residual oil,

H_{ro} is the heat input from combustion of residual oil,

EL_c is the appropriate emission limit from subparagraph c of paragraph 1 of this subdivision for combustion of coal,

H_c is the heat input from combustion of coal.

(3) On and after the date on which the initial performance test is completed or is required

to be completed under subsection 7 of section 33-15-12-01, whichever comes first, no owner or operator of an affected facility that simultaneously combusts coal or oil, or a mixture of these fuels with natural gas, and wood, municipal-type solid waste, or any other fuel shall cause to be discharged into the atmosphere any gases that contain nitrogen oxides in excess of the emission limit for the coal or oil, or mixture of these fuels with natural gas combusted in the affected facility, as determined pursuant to paragraph 1 or 2 of this subdivision, unless the affected facility has an annual capacity factor for coal or oil, or a mixture of these fuels with natural gas of ten percent or less and is subject to a federally enforceable requirement that limits operation of the facility to an annual capacity factor of ten percent or less for coal, oil, or a mixture of these fuels with natural gas.

(4) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts natural gas with wood, municipal-type solid waste, or other solid fuel, except coal, shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of one hundred thirty nanograms per joule [0.30 lb/million BTU] heat input unless the affected facility has an annual capacity factor for natural gas of ten percent or less and is subject to a federally enforceable requirement that limits operation of the affected facility to an annual capacity factor of ten percent or less for natural gas.

(5) On and after the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, no owner or operator of an affected facility that simultaneously combusts coal, oil, or natural gas with byproduct/wastes shall cause to be discharged into the atmosphere from that affected facility any gases that contain nitrogen oxides in excess of an emission limit determined by the following formula unless the affected facility has an annual capacity

factor for coal, oil, and natural gas of ten percent or less and is subject to a federally enforceable requirement which limits operation of the affected facility to an annual capacity factor of ten percent or less:

$$E_n = [(EL_{go}H_{go})+(EL_{ro}H_{ro})+(EL_cH_c)]/(H_{go}+H_{ro}+H_c)$$

where:

E_n is the nitrogen oxides emission limit (expressed as NO_2), ng/j [lb/million BTU],

EL_{go} is the appropriate emission limit from subparagraph a of paragraph 1 of this subdivision for combustion of natural gas or distillate oil, ng/j [lb/million BTU],

H_{go} is the heat input from combustion of natural gas or distillate oil and gaseous byproduct/waste, ng/j [lb/million BTU],

EL_{ro} is the appropriate emission limit from subparagraph b of paragraph 1 of this subdivision for combustion of residual oil, ng/j [lb/million BTU],

H_{ro} is the heat input from combustion of residual oil, and/or liquid byproduct/waste,

EL_c is the appropriate emission limit from subparagraph c of paragraph 1 of this subdivision for combustion of coal, and

H_c is the heat input from combustion of coal.

(6) Any owner or operator of an affected facility that combusts byproduct/waste with either natural gas or oil may petition the <u>department and</u> administrator within one hundred eighty days of the initial startup of the affected facility to establish a nitrogen oxides emission limit which shall apply specifically to that affected facility when the byproduct/waste is combusted. The petition shall include sufficient and appropriate data, as determined by the administrator, such as nitrogen oxides emissions from the affected facility, waste composition (including nitrogen content), and combustion conditions to allow the administrator to confirm that the affected facility is unable to comply with the emission limits in paragraph 5 of this subdivision and to determine the appropriate emission limit for the affected facility.

(a) Any owner or operator of an affected facility petitioning for a facility-specific nitrogen oxides emission limit under this subdivision shall:

[1] Demonstrate compliance with the emission limits for natural gas and distillate oil in subparagraph a of paragraph 1 of this subdivision or for residual oil in subparagraph b of paragraph 1 of this subdivision, as appropriate, by conducting a thirty-day performance test as provided in paragraph 5 of subdivision g. During the performance test only natural gas, distillate oil, or residual oil shall be combusted in the affected facility; and

[2] Demonstrate that the affected facility is unable to comply with the emission limits for natural gas and distillate oil in subparagraph a of paragraph 1 of this subdivision or for residual oil in subparagraph b of paragraph 1 of this subdivision, as appropriate, when gaseous or liquid byproduct/waste is combusted in the affected facility under the same conditions and using the same technological system of emission reduction applied when demonstrating compliance under item 1 of subparagraph a of paragraph 6 of this subdivision.

(b) The nitrogen oxides emission limits for natural gas or distillate oil in subparagraph a of paragraph 1 or for residual oil in subparagraph b of paragraph 1 <u>of this subdivision</u>, as appropriate, shall be applicable to the affected facility until and unless the petition is approved by the administrator. If the petition is approved by the <u>department and</u> administrator, a facility-specific nitrogen oxides emission limit will be established at the nitrogen oxides emission level achievable when the affected facility is combusting oil, or natural gas and byproduct/waste in a manner that the administrator determines to be consistent with minimizing nitrogen oxides emissions.

(7) Any owner or operator of an affected facility which combusts hazardous waste (as defined by 40 CFR part 261 or 40 CFR part 761) with natural gas or oil may petition the department and administrator within one hundred eighty days of the initial startup of the affected facility for a waiver from compliance with the nitrogen oxides emission limit which applies specifically to that affected facility. The petition must include sufficient and appropriate data, as determined by the department and administrator, on nitrogen oxides emissions from the affected facility, waste destruction efficiencies, waste composition (including nitrogen content), the quantity of specific wastes to be combusted and combustion conditions to allow the department and administrator to determine if the affected facility is able to comply with the nitrogen oxides emission limits required by this subdivision. The owner or operator of the affected facility shall demonstrate that when hazardous waste is combusted in the affected facility, thermal destruction efficiency requirements for hazardous waste specified in an applicable federally enforceable requirement preclude compliance with the nitrogen oxides emission limits of this subdivision. The nitrogen oxides emission limits for natural gas or distillate oil in subparagraph a of paragraph 1 of this subdivision or for residual oil in subparagraph b of paragraph 1 of this subdivision, as appropriate, are applicable to the affected facility until and unless the petition is approved by the department and administrator. (See 40 CFR 761.70 for regulations applicable to the incineration of materials containing polychlorinated biphenyls (PCB's).)

(8) The nitrogen oxide standards under this subdivision apply at all times including periods of startup, shutdown, or malfunction.

f. Compliance and performance test methods and procedures for sulfur dioxide.

(1) The sulfur dioxide emission standards under subdivision c apply at all times.

(2) In conducting the performance tests required under subsection 7 of section 33-15-12-01, the owner or operator shall use the methods and procedures in appendix A or the method and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Subdivision f of subsection 7 of section 33-15-12-01 does not apply to this subsection. The thirty-day notice required in subdivision d of subsection 7 of section 33-15-12-01 applies only to the initial performance test unless otherwise specified by the department.

(3) The owner or operator of an affected facility shall conduct performance tests to determine compliance with the percent of potential sulfur dioxide emission rate (% P_s) and the sulfur dioxide emission rate (E_s) pursuant to subdivision c following the procedures listed below, except as provided under paragraph 4 of this subdivision.

(a) The initial performance test shall be conducted over the first thirty consecutive operating days of the steam generating unit. Compliance with the sulfur dioxide standards shall be determined using a thirty-day average. The first operating day included in the initial performance test shall be scheduled within thirty days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup of the facility.

(b) If only coal or only oil is combusted, the following procedures are used:

[1] The procedures in method 19 are used to determine the hourly sulfur dioxide emission rate (E_{ho}) and the thirty-day average emission rate (E_{ao}). The hourly averages used to compute the thirty-day averages are obtained from the continuous emission monitoring system of paragraph 1 or 2 of subdivision h.

[2] The percent of potential sulfur dioxide emission rate (% P_s) emitted

to the atmosphere is computed using the following formula:

$$\%P_s = 100(1-\%R_g/100)(1-\%R\ /100)$$

where:

$\%R_g$ is the sulfur dioxide removal efficiency of the control device as determined by method 19, in percent,

$\%R_f$ is the sulfur dioxide removal efficiency of fuel pretreatment as determined by method 19, in percent.

(c) If coal or oil is combusted with other fuels, the same procedures required in subparagraph b of paragraph 3 are used, except as provided in the following:

[1] An adjusted hourly sulfur dioxide emission rate (E_{ho}^{o}) is used in Equation 19-19 of method 19 to compute an adjusted thirty-day average emission rate (E_{ao}^{o}). The E_{ho}^{o} is computed using the following formula:

$$E_{ho}^{o} = [E_{ho}-E_w(1-X_k)]/X_k$$

where:

E_{ho}^{o} is the adjusted hourly sulfur dioxide emission rate, ng/j [lb/million Btu],

E_{ho} is the hourly sulfur dioxide emission rate, ng/j [lb/million Btu],

E_w is the sulfur dioxide concentration in fuels other than coal and oil combusted in the affected facility, as determined by the fuel sampling and analysis procedures in method 19, ng/j [lb/million Btu]. The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted.

X_k is the fraction of total heat input from fuel combustion derived from coal, oil, or coal and oil, as determined by applicable procedures in method 19.

[2] To compute the percent of potential sulfur dioxide emission rate (% P_s), an adjusted % R_g (% R_g^o) is computed from the adjusted E_{ao}^o from item 1 of subparagraph c of paragraph 3 and an adjusted average sulfur dioxide inlet rate (E_{ai}^o) using the following formula:

$$\%R_g^o=100(1.0-E_{ao}^o/E_{ai}^o)$$

To compute E_{ai}^o, an adjusted hourly sulfur dioxide inlet rate (E_{hi}^o) is used. The E_{hi}^o is computed using the following formula:

$$E_{hi}^o=[E_{hi}-E_w(1-X_k)]/X_k$$

where:

E_{hi}^o is the adjusted hourly sulfur dioxide inlet rate, ng/j [lb/million Btu],

E_{hi} is the hourly sulfur dioxide inlet rate, ng/j [lb/million Btu].

(d) The owner or operator of an affected facility subject to subparagraph c of paragraph 3 does not have to measure parameters E_w or X_k if the owner or operator elects to assume that X_k=1.0. Owners or operators of affected facilities who assume X_k=1.0 shall:

[1] Determine % P_s following the procedures in subparagraph b of paragraph 3, and

[2] Sulfur dioxide emissions (E_s) are considered to be in compliance with sulfur dioxide emission limits under subdivision c.

(e) The owner or operator of an affected facility that qualifies under the provisions of paragraph 4 of subdivision c does not have to measure parameters E_w or X_k under subparagraph c of paragraph 3 if the owner or operator of the affected facility elects to measure sulfur dioxide emission rates of the coal or oil following the fuel sampling and analysis procedures under method 19.

(4) The owner or operator of an affected facility that combusts only oil emitting less than one hundred thirty nanograms per joule [0.30 lb/million Btu] sulfur dioxide, has an annual capacity factor for oil of ten percent or less, and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity for oil of ten percent or less shall:

(a) Conduct the initial performance test over twenty-four consecutive steam generating unit operating hours at full load;

(b) Determine compliance with the standards after the initial performance test based on the arithmetic average of the hourly emissions data during each steam generating unit operating day if a continuous emission measurement system (CEMS) is used, or based on a daily average if method 6B or fuel sampling analysis procedures under method 19 are used.

(5) The owner or operator of an affected facility subject to subparagraph a of paragraph 4 of subdivision c shall demonstrate the maximum design capacity of the steam generating unit by operating the facility at maximum capacity for twenty-four hours. This demonstration will be made during the initial performance test and a subsequent demonstration may be requested at any other time. If the twenty-four hour average firing rate for the affected facility is less than the maximum design capacity provided by the manufacturer of the affected facility, the twenty-four-hour average firing rate shall be used to determine the capacity utilization rate for the affected facility, otherwise the maximum design capacity provided by the manufacturer is used.

(6) For the initial performance test required under subsection 7 of section 33-15-12-01, compliance with the sulfur dioxide emission limits and percent reduction requirements under subdivision c is based on the average emission rates and the average percent reduction for sulfur dioxide for the first thirty consecutive steam generating unit operating days, except as provided under paragraph 4 of this subdivision. The initial performance test is the only test for which at least thirty days' prior notice is required unless otherwise specified by the department. The initial performance test is to be scheduled so that the first steam generating unit operating day of the thirty successive steam generating unit operating days is completed within thirty days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup of the facility. The boiler load during the thirty-day period does not have to be the maximum design load, but must be representative of future operating conditions and include at least one twenty-four-hour period at full load.

(7) After the initial performance test required under subsection 7 of section 33-15-12-01, compliance with the sulfur dioxide emission limits and percent reduction requirements under subdivision c is based on the average emission rates and the average percent reduction for sulfur dioxide for thirty successive steam generating unit operating days, except as provided under paragraph 4 of this subdivision. A separate performance test is completed at the end of each steam generating unit operating day after the initial performance test, and a new thirty-day average emission rate and percent reduction for sulfur dioxide are calculated to show compliance with the standard.

(8) Except as provided under paragraph 9 of this subdivision, the owner or operator of an affected facility shall use all valid sulfur dioxide emissions data in calculating $\% P_s$ and E_{ho} under paragraph 3 of this subdivision whether or not the minimum emissions data requirements under subdivision g are achieved. All valid emissions data, including valid sulfur dioxides emission data collected

during periods of startup, shutdown, and malfunction, shall be used in calculating % P_s and E_{ho} pursuant to paragraph 3 of this subdivision.

(9) During periods of malfunction or maintenance of the sulfur dioxide control systems when oil is combusted as provided under paragraph 9 of subdivision c, emission data are not used to calculate % P_s or E_s under paragraph 1, 2, or 3 of subdivision c, however, the emissions data are used to determine compliance with the emission limit under paragraph 9 of subdivision c.

g. Compliance and performance test methods and procedures for particulate matter and nitrogen oxides.

(1) The particulate matter emission standards and opacity limits under subdivision d apply at all times except during periods of startup, shutdown, or malfunction. The nitrogen oxides emission standards under subdivision e apply at all times.

(2) Compliance with the particulate matter emission standards under subdivision d shall be determined through performance testing as described in paragraph 4 of this subdivision.

(3) Compliance with the nitrogen oxides emission standards under subdivision e shall be determined through performance testing as described in paragraph 5 or 6 of this subdivision.

(4) The following procedures and reference methods are used to determine compliance with the standards for particulate matter emissions under subdivision d.

(a) Method 3 is used for gas analysis when applying method 5 or method 17.

(b) Method 5, method 5B, or method 17 shall be used to measure the concentration of particulate matter as follows:

[1] Method 5 shall be used at affected facilities without wet flue gas desulfurization (FGD) systems; and

    [2] Method 17 may be used at facilities with or without wet scrubber systems provided that the stack gas temperature does not exceed a temperature of one hundred sixty degrees Celsius [320 degrees Fahrenheit]. The procedures of sections 2.1 and 2.3 of method 5B may be used in method 17 only if it is used after a wet flue gas desulfurization (FGD) system. Do not use method 17 after wet flue gas desulfurization (FGD) systems if the effluent is saturated or laden with water droplets.

    [3] Method 5B is used only after wet flue gas desulfurization (FGD) systems.

(c) Method 1 is used to select the sampling site and the number of traverse sampling points. The sampling time for each run is at least one hundred twenty minutes and the minimum sampling volume is 1.7 dry cubic meter at standard conditions [60 dscf] except that smaller sampling times or volumes may be approved by the department when necessitated by process variables or other factors.

(d) For method 5, the temperature of the sample gas in the probe and filter holder is monitored and is maintained at one hundred sixty degrees Celsius [320 degrees Fahrenheit].

(e) For determination of particulate matter emissions, the oxygen or carbon dioxide sample is obtained simultaneously with each run of method 5, method 5B, or method 17 by traversing the duct at the same sampling location.

(f) For each run using method 5, method 5B, or method 17, the emission rate expressed in nanograms per joule heat input is determined using:

    [1] The oxygen or carbon dioxide measurements and particulate matter measurements obtained under this subdivision.

[2] The dry basis F factor, and

[3] The dry basis emission rate calculation procedure contained in reference method 19 (appendix A).

(g) Method 9 is used for determining the opacity of stack emissions.

(5) To determine compliance with the emission limits for nitrogen oxides required under subdivision e, the owner or operator of an affected facility shall conduct the performance test as required under subsection 7 of section 33-15-12-01 using the continuous system for monitoring nitrogen oxides under paragraph 2 of subdivision i.

(a) For the initial compliance test, nitrogen oxides from the steam generating unit are monitored for thirty successive steam generating unit operating days and the thirty-day average emission rate is used to determine compliance with the nitrogen oxides emission standards under subdivision e. The thirty-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the thirty-day test period.

(b) Following the date on which the initial performance test is completed or is required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, the owner or operator of an affected facility which combusts coal or which combusts residual oil having a nitrogen content greater than 0.30 weight percent shall determine compliance with the nitrogen oxides emission standard under subdivision e on a continuous basis through the use of a thirty-day rolling average emission rate. A new thirty-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxides emission data for the preceding thirty steam generating unit operating days.

(c) Following the date on which the initial performance test is completed or is required to be completed under subsection

7 of section 33-15-12-01, whichever date comes first, the owner or operator of an affected facility which has a heat input capacity greater than seventy-three megawatts [250 million Btu/hour] and which combusts natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall determine compliance with the nitrogen oxides standards under subdivision e on a continuous basis through the use of a thirty-day rolling average emission rate. A new thirty-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxide emission data for the preceding thirty steam generating unit operating days.

(d) Following the date on which the initial performance test is completed or required to be completed under subsection 7 of section 33-15-12-01, whichever date comes first, the owner or operator of an affected facility which has a heat input capacity of seventy-three megawatts [250 million Btu/hour] or less and which combusts natural gas, distillate oil, or residual oil having a nitrogen content of 0.30 weight percent or less shall upon request determine compliance with the nitrogen oxides standards under subdivision e through the use of a thirty-day performance test. During periods when performance tests are not requested, nitrogen oxides emissions data collected pursuant to subparagraph a or b of paragraph 7 of subdivision i are used to calculate a thirty-day rolling average emission rate on a daily basis and used to prepare excess emission reports, but will not be used to determine compliance with the nitrogen oxides emission standards. A new thirty-day rolling average emission rate is calculated each steam generating unit operating day as the average of all of the hourly nitrogen oxides emission data for the preceding thirty steam generating unit operating days.

(e) If the owner or operator of an affected facility which combusts residual oil does not sample and analyze the residual oil for nitrogen content, as specified in paragraph 5 of subdivision j, the requirements of subparagraph c of paragraph 5 of this subdivision apply and the provisions of subparagraph d of paragraph 5 of this subdivision are inapplicable.

(6) To determine compliance with the emission limit for nitrogen oxides required by subparagraph d of paragraph 1 of subdivision e for duct burners used in combined cycle systems, the owner or operator of an affected facility shall conduct the performance test required under subsection 7 of section 33-15-12-01 using the nitrogen oxides and oxygen measurement procedures in 40 CFR Part 60 appendix A, method 20. During the performance test, one sampling site shall be located as close as practical to the exhaust of the turbine, as provided by section 6.1.1 of method 20. A second sampling site shall be located at the outlet to the steam generating unit. Measurements of nitrogen oxides and oxygen shall be taken at both sampling sites during the performance test. The nitrogen oxides emission rate from the combined cycle system shall be calculated by subtracting the nitrogen oxides emission rate measured at the sampling site at the outlet from the turbine from the nitrogen oxides emission rate measured at the sampling site at the outlet from the steam generating unit.

h. Emission monitoring for sulfur dioxide.

(1) Except as provided in paragraph 2 of this subdivision, the owner or operator of an affected facility subject to the sulfur dioxide standards under subdivision c shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) for measuring sulfur dioxide concentrations and either oxygen (O_2) or carbon dioxide (CO_2) concentrations and shall record the output of the systems. The sulfur dioxide and either oxygen or carbon dioxide concentrations shall both be monitored at the inlet and outlet of the sulfur dioxide control device.

(2) As an alternative to operating continuous emission monitoring systems (CEMS) as required under paragraph 1 of this subdivision, an

owner or operator may elect to determine the average sulfur dioxide emissions and percent reduction by:

(a) Collecting coal or oil samples in an as-fired condition at the inlet to the steam generating unit and analyzing them for sulfur and heat content according to method 19. Method 19 provides procedures for converting these measurements into the format to be used in calculating the average sulfur dioxide input rate, or

(b) Measuring sulfur dioxide according to method 6B at the inlet or outlet to the sulfur dioxide control system. An initial stratification test is required to verify the adequacy of the method 6B sampling location. The stratification test shall consist of three paired runs of a suitable sulfur dioxide and carbon dioxide measurement train operated at the candidate location and a second similar train operated according to the procedures in section 3.2 and the applicable procedures in section 7 of performance specification 2. Method 6B, method 6A, or a combination of methods 6 and 3 or methods 6C and 3A are suitable measurement techniques. If method 6B is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for method 6B twenty-four-hour tests, the mean of the absolute difference between the three paired runs must be less than ten percent.

(c) A daily sulfur dioxide emission rate, E_D, shall be determined using the procedure described in method 6A, section 7.6.2 (equation 6A-8) and stated in ng/j [lb/million Btu] heat input.

(d) The mean thirty-day emission rate is calculated using the daily measured values in ng/j [lb/million Btu] for thirty successive steam generating unit operating days using equation 19-20 of method 19.

(3) The owner or operator of an affected facility shall obtain emission data for at least seventy-five percent of the operating hours in at least twenty-two out of thirty successive boiler operating days. If this minimum data requirement is not met with a single monitoring system, the owner or operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the department or the reference methods and procedures as described in paragraph 2 of this subdivision.

(4) The one-hour average sulfur dioxide emission rates measured by the continuous emission monitoring system (CEMS) required by paragraph 1 of this subdivision and required under subdivision h of subsection 11 of section 33-15-12-01 is expressed in nanograms per joule or pounds per million British thermal unit heat input and is used to calculate the average emission rates under subdivision c. Each one-hour average sulfur dioxide emission rate must be based on more than thirty minutes of steam generating unit operation and include at least two data points with each representing a fifteen-minute period. Hourly sulfur dioxide emission rates are not calculated if the affected facility is operated less than thirty minutes in a one-hour period and are not counted toward determination of a steam generating unit operating day.

(5) The procedures under subsection 11 of section 33-15-12-01 shall be followed for installation, evaluation, and operation of the continuous emission monitoring system (CEMS).

(a) All continuous emission monitoring systems (CEMS) shall be operated in accordance with the applicable procedures under performance specifications 1, 2, and 3 (appendix B).

(b) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with procedure 1 (appendix F).

(c) For affected facilities combusting coal or oil, alone or in combination with other fuels, the span value of the sulfur dioxide continuous emission monitoring system (CEMS) at the inlet to the sulfur dioxide control device is one hundred twenty-five percent of the maximum estimated hourly potential sulfur dioxide emissions of the fuel combusted, and the span value of the continuous emission monitoring system (CEMS) at the outlet to the sulfur dioxide control device is fifty percent of the maximum estimated hourly potential sulfur dioxide emissions of the fuel combusted.

i. Emission monitoring for particulate matter and nitrogen oxides.

(1) The owner or operator of an affected facility subject to the opacity standard under subdivision d shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system.

(2) Except as provided in paragraphs 7 and 8 of this subdivision, the owner or operator of an affected facility subject to the nitrogen oxides standard of paragraph 1 of subdivision e shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions discharged to the atmosphere and record the output of the system.

(3) The continuous monitoring systems required under paragraph 2 of this subdivision shall be operated and data recorded during all periods of operation of the affected facility except for continuous monitoring system breakdowns and repairs, data is recorded during calibration checks, and zero and span adjustments.

(4) The one-hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor required by paragraph 2 of this subdivision and required under subdivision h of subsection 11 of section 33-15-12-01 shall be expressed in nanograms per joule or pounds per million British thermal unit heat input and shall be used to calculate the average emission rates under subdivision e. The one-hour averages shall be calculated using the data points required under subdivision h of

subsection 11 of section 33-15-12-01. At least two data points must be used to calculate each one-hour average.

(5) The procedures under subsection 11 of section 33-15-12-01 shall be followed for installation, evaluation, and operation of the continuous monitoring systems.

(a) For affected facilities combusting coal, wood, or municipal-type solid waste, the span value for a continuous monitoring system for measuring opacity shall be between sixty and eighty percent.

(b) For affected facilities combusting coal, oil, or natural gas, the span value for nitrogen oxides is determined as follows:

Fuel	Span values for nitrogen oxides (PPM)
Natural gas........................	500
Oil................................	500
Coal...............................	1000
Mixtures...........................	$500(x+y)+1000z$

where:

x is the fraction of total heat input derived from natural gas,

y is the fraction of total heat input derived from oil, and

z is the fraction of total heat input derived from coal.

(c) All span values computed under subparagraph b of paragraph 5 of this subdivision for combusting mixtures of regulated fuels are rounded to the nearest five hundred parts per million.

(6) When nitrogen oxides emission data are not obtained because of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emission data will be obtained by using standby monitoring systems. Method 7, method 7A, or other approved reference methods to provide emission data for a minimum of

seventy-five percent of the operating hours in each steam generating unit operating day, in at least twenty-two out of thirty successive steam generating unit operating days.

(7) The owner or operator of an affected facility which has a heat input capacity of seventy-three megawatts [250 million Btu/hour] or less, and which has an annual capacity factor for residual oil having a nitrogen content of 0.30 weight percent or less, natural gas, distillate oil, or any mixture of these fuels, greater than ten percent shall:

(a) Comply with the provisions of paragraphs 2, 3, 4, subparagraph b of paragraph 5, subparagraph c of paragraph 5, and paragraph 6 of this subdivision, or

(b) Monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to paragraph 3 of subdivision j.

(8) The owner or operator of an affected facility which is subject to the nitrogen oxides standards of subparagraph d of paragraph 1 of subdivision e is not required to install or operate a continuous monitoring system to measure nitrogen oxides emissions.

j. Reporting and recordkeeping requirements.

(1) The owner or operator of each affected facility shall submit notification of the date of initial startup, as provided by subsection 6 of section 33-15-12-01. This notification shall include:

(a) The design heat input capacity of the affected facility and identification of the fuels to be combusted in the affected facility,

(b) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under subparagraph a of paragraph 4 of subdivision c, subparagraph b of paragraph 1 of subdivision d, item 3 of subparagraph c of paragraph 1 of subdivision d, item 2 of subparagraph b of paragraph 3 of subdivision d, item 3 of subparagraph b of paragraph 4 of subdivision d, paragraphs 3, 4, and 5 of subdivision e or paragraph 4 of subdivision f.

(c) The annual capacity factor at which the owner or operator anticipates operating the facility based on all fuels fired and based on each individual fuel fired, and,

(d) Notification that an emerging technology will be used for controlling emissions of sulfur dioxide. The administrator will examine the description of the emerging technology and will determine whether the technology qualifies as an emerging technology. In making this determination, the department and administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of paragraph 1 of subdivision c unless and until this determination is made by the administrator.

(2) The owner or operator of each affected facility subject to the sulfur dioxide, particulate matter, and nitrogen oxides emission limits under subdivisions c, d, and e shall submit to the department the performance test data from the initial performance test and the performance evaluation of the continuous emission monitoring system (CEMS) using the applicable performance specifications in appendix B.

(3) The owner or operator of each affected facility subject to the nitrogen oxides standard of subdivision e who seeks to demonstrate compliance with those standards through the monitoring of steam generating unit operating conditions under the provisions of subparagraph b of paragraph 7 of subdivision i shall submit to the department for approval a plan that identifies the operating conditions to be monitored under subparagraph b of paragraph 7 of subdivision i and the records to be maintained under paragraph 10 of this subdivision. This plan shall be submitted to the department for approval within three hundred sixty days of

the initial startup of the affected facility. The plan shall:

(a) Identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxides emission rates (i.e., nanograms per joule or pounds per million Btu heat input). Steam generating unit operating conditions include, but are not limited to, degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);

(b) Include the data and information which the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions;

(c) Identify how these operating conditions, including steam generating unit load, will be monitored under paragraph 7 of subdivision i on an hourly basis by the owner or operator during the period of operation of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the owner or operator under paragraph 10 of this subdivision. If the plan is approved, the owner or operator shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including steam generating unit load, identified in the plan.

(4) The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor for coal, distillate oil, residual oil, natural gas, wood, and municipal-type solid waste for each calendar quarter. The annual capacity factor is determined on a twelve-month rolling average basis with a new annual capacity

factor calculated at the end of each calendar month.

(5) For affected facilities that (1) combust residual oil having a nitrogen content of 0.30 weight percent or less; (2) have heat input capacities of seventy-three megawatts [250 million Btu/hour] or less; and (3) monitor nitrogen oxides emission or steam generating unit operating conditions under paragraph 7 of subdivision i, the owner or operator shall maintain records of the nitrogen content of the oil combusted in the affected facility and calculate the average fuel nitrogen content on a per calendar quarter basis. The nitrogen content shall be determined using A.S.T.M. Method D3431-80, test method for trace nitrogen in liquid petroleum hydrocarbons or fuel specification data obtained from fuel suppliers. If residual oil blends are being combusted, fuel nitrogen specifications may be prorated based on the ratio of residual oils of different nitrogen content in the fuel blend.

(6) For facilities subject to the opacity standard under subdivision d, the owner or operator shall maintain records of opacity.

(7) For facilities subject to nitrogen oxides standards under subdivision e, the owner or operator shall maintain records of the following information for each steam generating unit operating day:

(a) Calendar date.

(b) The average hourly nitrogen oxides emission rates (expressed as NO_2) (nanograms per joule or pounds per million BTU heat input) measured or predicted.

(c) The thirty-day average nitrogen oxides emission rates (nanograms per joule or lb/million BTU heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding thirty steam generating unit operating days.

(d) Identification of the steam generating unit operating days when the calculated thirty-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under subdivision e, with the reasons for such excess emissions as well as a description of corrective actions taken.

(e) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(f) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

(g) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(h) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(i) Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with performance specification 2 or 3.

(j) Results of daily continuous emission monitoring systems (CEMS) drift tests and quarterly accuracy assessments as required under appendix F procedure 1.

(8) The owner or operator of any affected facility in any category listed below in subparagraph a or b of paragraph 8 of this subdivision is required to submit excess emission reports for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period.

(a) Any affected facility subject to the opacity standards under paragraph 5 of subdivision d or to the operating parameter monitoring requirements under subparagraph a of paragraph 1 of subdivision h of subsection 11 of section 33-15-12-01.

(b) Any affected facility that is subject to the nitrogen oxides standard of subdivision e and that:

[1] Combusts natural gas, distillate oil, or residual oil with a nitrogen content of 0.30 weight percent or less; or

[2] Has a heat input capacity of seventy-three megawatts [250 million Btu/hour] or less, and is required to monitor nitrogen oxides emissions on a continuous basis under subparagraph a of paragraph 7 of subdivision i or steam generating unit operating conditions under subparagraph b of paragraph 7 of subdivision i.

(c) For the purpose of subdivision d, excess emissions are defined as all six-minute periods during which the average opacity exceeds the opacity standards under paragraph 6 of subdivision d.

(d) For purposes of subparagraph a of paragraph 7 of subdivision i, excess emissions are defined as any calculated thirty-day rolling average nitrogen oxides emission rate, as determined under paragraph 5 of subdivision g, which exceeds the applicable emission limits in subdivision e.

(9) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under paragraph 2 of subdivision i shall submit a quarterly report containing the information recorded under paragraph 7 of this subdivision. All quarterly reports shall be postmarked by the thirtieth day following the end of each calendar quarter.

(10) The owner or operator of any affected facility subject to the sulfur dioxide standards under subdivision c shall submit written reports to the department for every calendar quarter. All quarterly reports shall be postmarked by

the thirtieth day following the end of the calendar quarter.

(11) For each affected facility subject to the compliance and performance testing requirements of subdivision f and the reporting requirements in paragraph 10 of this subdivision, the following information shall be reported to the department:

(a) Calendar dates covered in the reporting period.

(b) Each thirty-day average sulfur dioxide emission rate (ng/j or lb/million BTU heat input) measured during the reporting period, ending with the last thirty-day period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(c) Each thirty-day average percent reduction in the sulfur dioxide emissions calculated during the reporting period, ending with the last thirty-day period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(d) Identification of the steam generating unit operating days that coal or oil was combusted and for which sulfur dioxide or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least seventy-five percent of the operating hours in the steam generating unit operating day; justification for not obtaining sufficient data; and description of corrective action taken.

(e) Identification of the times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and description of corrective action taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(f) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

(g) Identification of times when hourly averages have been obtained based on manual sampling methods.

(h) Identification of the times when the pollutant concentration exceeded full span of the continuous emission monitoring system (CEMS).

(i) Description of any modifications to the continuous emission monitoring system (CEMS) that could affect the ability of the continuous emission monitoring system (CEMS) to comply with performance specification 2 or 3.

(j) Results of daily continuous emission monitoring system (CEMS) drift tests and quarterly accuracy assessments as required under appendix F, procedure 1.

(k) The annual capacity factor of each fired as provided under paragraph 4 of this subdivision.

(12) For each affected facility subject to the compliance and performance testing requirements of paragraph 4 of subdivision f and the reporting requirements of paragraph 10 of this subdivision, the following information shall be reported to the department:

(a) Calendar dates when the facility was in operation during the reporting period.

(b) The twenty-four-hour average sulfur dioxide emission rate measured for each steam generating unit operating day during the reporting period that coal or oil was combusted, ending in the last twenty-four-hour period in the quarter; reasons for noncompliance with the emission standards; and a description of corrective actions taken.

(c) Identification of the steam generating unit operating days that coal or oil was combusted for which sulfur dioxide or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least seventy-five percent of the operating hours; justification for not obtaining sufficient data; and description of corrective action taken.

(d) Identification of the times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and description of corrective action taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(e) Identification of "F" factor used for calculations, method determination, and type of fuel combusted.

(f) Identification of times when hourly averages have been obtained based on manual sampling methods.

(g) Identification of the times when the pollutant concentration exceeded full span of the continuous emission monitoring system (CEMS).

(h) Description of any modifications to the continuous emission monitoring system (CEMS) to comply with performance specification 2 or 3.

(i) Results of daily continuous emission monitoring system (CEMS) drift tests and quarterly accuracy assessments as required under appendix F, procedure 1.

(13) For each affected facility subject to the sulfur dioxide standards under subdivision c for which the minimum amount of data required under paragraph 6 of subdivision h were not obtained during a calendar quarter, the following information is reported to the department in addition to that required under paragraph 11 of this subdivision:

(a) The number of hourly averages available for outlet emission rates and inlet emission rates.

(b) The standard deviation of hourly averages for outlet emission rates and inlet emission rates, as determined in method 19, section 7.

(c) The lower confidence limit for the mean outlet emission rate and the upper confidence limit for the mean inlet emission rate, as calculated in method 19, section 7.

(d) The ratio of the lower confidence limit for the mean outlet emission rate and the allowable emission rate, as determined in method 19, section 7.

(14) If a percent removal efficiency by fuel pretreatment (i.e., % R_f) is used to determine the overall percent reduction (i.e., % R_o) under subdivision f, the owner or operator of the affected facility shall submit a signed statement with the quarterly report:

(a) Indicating what removal efficiency by fuel pretreatment (i.e., % R_f) was credited for the calendar quarter.

(b) Listing the quantity, heat content, and date each pretreated fuel shipment was received during the previous calendar quarter; the name and location of the fuel pretreatment facility; and the total quantity and total heat content of all fuels received at the affected facility during the previous calendar quarter.

(c) Documenting the transport of the fuel from the fuel pretreatment facility to the steam generating unit.

(d) Including a signed statement from the owner or operator of the fuel pretreatment facility certifying that the percent removal efficiency achieved by fuel pretreatment was determined in accordance with the provisions of method 19 (appendix A) and listing the heat content and sulfur content of each fuel before and after fuel pretreatment.

(15) All records required under this subdivision shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

4. **Standards of performance for portland cement plants.**

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to the following affected facilities in portland cement plants: kiln, clinker cooler, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, conveyor transfer points, bagging and bulk loading and unloading systems. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

   <u>(1)</u> <u>"Portland cement plant" means any facility manufacturing portland cement by either the wet or dry process.</u>

   <u>(2)</u> <u>"Bypass" means any system that prevents all or a portion of the kiln or clinker cooler exhaust gases from entering the main control device and ducts the gases through a separate control device. This does not include emergency systems designed to duct exhaust gases directly to the atmosphere in the event of a malfunction of any control device controlling kiln or clinker cooler emissions.</u>

   <u>(3)</u> <u>"Bypass stack" means the stack that vents exhaust gases to the atmosphere from the bypass control device.</u>

   <u>(4)</u> <u>"Monovent" means an exhaust configuration of a building or emission control device (e.g., positive-pressure fabric filter) that extends the length of the structure and has a width very small in relation to its length (i.e., length to width ratio is typically greater than 5:1). The exhaust may be an open vent with or without a roof, louvered vents, or a combination of such features.</u>

c. Standard for particulate matter.

   (1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any kiln any gases which:

      (a) Contain particulate matter in excess of fifteen-hundredths kilogram per metric ton [0.30 pound per ton] of feed (dry basis) to the kiln.

(b) Exhibit greater than ten percent opacity.

(2) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any clinker cooler any gases which:

(a) Contain particulate matter in excess of five-hundredths kilogram per metric ton [0.10 pound per ton] of feed (dry basis) to the kiln.

(b) Exhibit ten percent opacity, or greater.

(3) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility, other than the kiln and clinker cooler, any gases which exhibit ten percent opacity or greater.

d. Monitoring of operations.

(1) The owner or operator of any portland cement plant subject to the provisions of this subsection shall record the daily production rates and kiln feed rates.

(2) Except as provided in paragraph 3 of this subdivision, each owner or operator of a kiln or clinker cooler that is subject to the provisions of this subsection shall install, calibrate, maintain, and operate in accordance with subsection 11 of section 33-15-12-01 a continuous opacity monitoring system to measure the opacity of emissions discharged into the atmosphere from any kiln or clinker cooler. Except as provided in paragraph 3 of this subdivision, a continuous opacity monitoring system must be installed on each stack of any multiple stack device controlling emissions from any kiln or clinker cooler. If there is a separate bypass installed, each owner or operator of a kiln or clinker shall also install, calibrate, maintain, and operate a continuous opacity monitoring system on each bypass stack in addition to the main control device stack. Each owner or operator of an affected kiln or clinker cooler for which the

performance test required under subsection 7 of section 33-15-12-01 has been completed on or prior to December 14, 1988, shall install the continuous opacity monitoring system within one hundred eighty days after December 14, 1988.

(3) Each owner or operator of a kiln or clinker cooler subject to the provisions of this subsection using a positive-pressure fabric filter with multiple stacks, or a negative-pressure fabric filter with multiple stacks, or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph 2 of this subdivision, monitor visible emissions at least once per day by using a certified visible emissions observer. If the control device exhausts gases through a monovent, visible emission observations in lieu of a continuous opacity monitoring system are required. These observations must be taken in accordance with EPA method 9. Visible emissions must be observed during conditions representative of normal operation. Observations must be recorded for at least three 6-minute periods each day. In event that visible emissions are observed for a number of emission sites from the control device with multiple stacks, method 9 observations must be recorded for the emission site with the highest opacity. All records of visible emissions must be maintained for a period of two years.

(4) For the purpose of reports under subdivision f, periods of excess emissions that must be reported are defined as all six-minute periods during which the average opacity exceeds that allowed by subparagraph b of paragraph 1 of subdivision c or subparagraph b of paragraph 2 of subdivision c.

(5) The provisions of paragraphs 1, 2, and 3 of this subdivision apply to kilns and clinker coolers for which construction, modification, or reconstruction commenced after August 17, 1971.

e. Test methods and procedures.

~~(1) The reference methods in appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must~~

~~be used to determine compliance with the standards prescribed in subdivision c as follows:~~

~~(a)~~ ~~Method 5 for the concentration of particulate matter and the associated moisture content.~~

~~(b)~~ ~~Method 1 for sample and velocity traverses.~~

~~(c)~~ ~~Method 2 for velocity and volumetric flow rate.~~

~~(d)~~ ~~Method 3 for gas analysis.~~

~~(2)~~ ~~For method 5, the minimum sampling time and minimum sample volume for each run, except when process variables or other factors justify otherwise to the satisfaction of the department, shall be as follows:~~

~~(a)~~ ~~Sixty minutes and 0.85 dry cubic meter at standard conditions (30.0 dscf) for the kiln.~~

~~(b)~~ ~~Sixty minutes and 1.15 dry cubic meter at standard conditions (40.6 dscf) for the clinker cooler.~~

~~(3)~~ ~~Total kiln feed rate (except fuels), expressed in metric tons per hour on a dry basis, must be determined during each testing period by suitable methods, and must be confirmed by a material balance over the production system.~~

~~(4)~~ ~~For each run, particulate matter emissions, expressed in grams per metric ton of kiln feed, must be determined by dividing the emission rate in grams per hour by the kiln feed rate. The emission rate must be determined by the equation, g/hr = $Q_s$xc, where Q_s = volumetric flow rate of the total effluent in dscm/hr as determined in accordance with subparagraph c of paragraph 1 and c = particulate concentration in g/dscm as determined in accordance with paragraph 1.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this

subsection, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the particulate matter standard in subdivision c as follows:

(a) The emission rate (E) of particulate matter must be computed for each run using the following equation:

$$E = (C_s Q_{sd})/(P K)$$

where:

E = emission rate of particulate matter, kg/metric ton (lb/ton) of kiln feed.

C_s = concentration of particulate matter, g/dscm (g/dscf).

Q_{sd} = volumetric flow rate of effluent gas, dscm/hr (dscf/hr).

P = total kiln feed (dry basis) rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 g/kg [453.6 g/lb].

(b) Method 5 must be used to determine the particulate matter concentration (C_s) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry standard cubic meters [30.0 dscf] for the kiln and at least sixty minutes and 1.15 dry standard cubic meters [40.6 dscf] for the clinker cooler.

(c) Suitable methods must be used to determine the kiln feed rate (P), except fuels, for each run. Material balance over the production system shall be used to confirm the feed rate.

(d) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

f. Recordkeeping and reporting requirements.

(1) Each owner or operator required to install a continuous opacity monitoring system under paragraph 2 of subdivision d shall submit reports of excess emissions as defined in paragraph 4 of subdivision d. The content of these reports must comply with the requirements in subdivision c of subsection 6 of section 33-15-12-01. Notwithstanding the provisions of subdivision c of subsection 6 of section 33-15-12-01, such reports must be submitted semiannually.

(2) Each owner or operator monitoring visible emissions under paragraph 3 of subdivision d shall submit seminannual reports of observed excess emissions as defined in paragraph 4 of subdivision d.

(3) Each owner or operator of facilities subject to the provisions of paragraph 3 of subdivision d shall submit semiannual reports of the malfunction information required to be recorded by subdivision b of subsection 6 of section 33-15-12-01. These reports must include the frequency, duration, and cause of any incident resulting in deenergization of any device controlling kiln emissions or in the venting of emissions directly to the atmosphere.

5. **Standards of performance for nitric acid plants.**

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to each nitric acid production unit, which is the affected facility. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Nitric acid production unit" means any facility producing weak nitric acid by either the pressure or atmospheric pressure process.

(2) "Weak nitric acid" means acid which is thirty to seventy percent in strength.

c. Standard for nitrogen oxides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain nitrogen oxides, expressed as nitrogen dioxide, in excess of one and five-tenths kilograms per metric ton [3.0 pounds per ton] of acid produced, the production being expressed as one hundred percent nitric acid.

(2) Exhibit ten percent opacity, or greater.

d. Emission monitoring.

(1) ~~A continuous monitoring system for the measurement of nitrogen oxides must be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, performance specification 2 and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 must be nitrogen dioxide. The span must be set at five hundred parts per million of nitrogen dioxide. Reference method 7, 7A, 7B, 7C, or 7D must be used for conducting monitoring system performance evaluations under subdivision c of subsection 11 of section 33-15-12-01.~~

The source owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides (NO_x). The pollutant gas mixtures under performance specification 2 and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 must be nitrogen dioxide (NO_2). The span value must be five hundred parts per million of nitrogen dioxide. Method 7 must be used for the performance evaluations under subdivision c of subsection 11 of section 33-15-12-01. Acceptable alternative methods to method 7 are given in paragraph 3 of subdivision e.

(2) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kilograms per metric ton, pounds per ~~short~~ ton). The conversion factor must be established by measuring emissions with the continuous monitoring system

concurrent with measuring emissions with the applicable reference method tests. Using only that portion of the continuous monitoring emission data that represents emission measurements concurrent with the reference method test periods, the conversion factor must be determined by dividing the reference method test data averages by the monitoring data averages to obtain a ratio expressed in units of the applicable standard to units of the monitoring data, i.e., kilograms per metric ton per parts per million (pounds per ~~short~~ ton per parts per million). The conversion factor must be reestablished during any performance test under subsection 7 of section 33-15-12-01 or any continuous monitoring system performance evaluation under subdivision c of subsection 11 of section 33-15-12-01.

(3) The owner or operator shall record the daily production rate and hour of operation.

(4) [Reserved]

(5) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that must be reported are defined as any three-hour period during which the average nitrogen oxides emissions (arithmetic average of three contiguous one-hour periods) as measured by a continuous monitoring system exceed the standard under subdivision c.

e. Test methods and procedures.

~~(1) The reference methods in appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in paragraph 3 as follows:~~

~~(a) Method 7, 7A, 7B, 7C, or 7D for the concentration of nitrogen oxides;~~

~~(b) Method 1 for sample and velocity traverses;~~

~~(c) Method 2 for velocity and volumetric flow rate;~~

~~(d) Method 3 for gas analysis;~~

~~(2) For method 7, 7A, 7B, or 7D, the sample site must be selected according to method 1 and the sampling point must be the centroid of the stack or duct or at a point no closer to the walls than one meter (3.28 feet). For method 7, 7A, or 7B, each run shall consist of four grab samples taken at approximately fifteen-minute intervals. The arithmetic mean of the samples shall constitute the run value. For method 7C or 7D, each run shall consist of a one-hour sample. A velocity traverse must be performed once per run.~~

~~(3) Acid production rate, expressed in metric tons per hour of one hundred percent nitric acid, must be determined during each testing period by suitable methods and must be confirmed by a material balance over the production system.~~

~~(4) For each run, nitrogen oxides, expressed in grams per metric ton of one hundred percent nitric acid, must be determined by dividing the emission rate in grams per hour by the acid production rate. The emission rate must be determined by the equation:~~

~~$g/hr = Q_s x c$~~

~~where:~~

~~Q_s = volumetric flow rate of the effluent in dscm/hr, as determined in accordance with subparagraph c of paragraph 1 and~~
~~c = NO_x concentration in g/dscm, as determined in accordance with subparagraph a of paragraph 1.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Acceptable alternative methods and procedures are given in paragraph 3 of this subdivision.

(2) The owner or operator shall determine compliance with the nitrogen oxides standard in subdivision c as follows:

(a) The emission rate (E) of nitrogen oxides must be computed for each run using the following equation:

$E = (C_s Q_{sd})/(P K)$

where:

E = emission rate of NO_x as NO_2, kg/metric ton (lb/ton) of 100 percent nitric acid.

C_s = concentration of NO_x as NO_2, g/dscm (lb/dscf).

Q_{sd} = volumetric flow rate of effluent gas, dscm/hr (dscf/hr).

P = acid production rate, metric ton/hr (ton/hr) or 100 percent nitric acid.

K = conversion factor, 1000 g/Kg (1.0 lb/lb).

(b) Method 7 must be used to determine the nitrogen oxides concentration of each grab sample. Method 1 must be used to select the sampling site, and the sampling point must be the centroid of the stack or duct or at a point no closer to the walls than one meter (3.28 ft). Four grab samples must be taken at approximately fifteen-minute intervals. The arithmetic mean of the four sample concentrations must constitute the run value (C_s).

(c) Method 2 must be used to determine the volumetric flow rate (Q_{sd}) of the effluent gas. The measurement site must be the same as for the nitrogen oxides sample. A velocity traverse must be made once per run within the hour that the nitrogen oxides samples are taken.

(d) The methods of paragraph 3 of subdivision d shall be used to determine the production rate (P) of one hundred percent nitric acid for each run. Materials balance over the production system must be used to confirm the production rate.

(3) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision:

for method 7, 7A, 7B, 7C, or 7D may be used. If method 7C or 7D is used, the sampling time must be at least one hour.

(4) The owner or operator shall use the procedure in paragraph 2 of subdivision d to determine the conversion factor for converting the monitoring data to the units of the standard.

6. **Standards of performance for sulfuric acid plants.**

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to each sulfuric acid production unit, which is the affected facility. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Acid mist" means sulfuric acid mist, as measured by method 8 of appendix A to this chapter or an equivalent or alternative method.

(2) "Sulfuric acid production unit" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

c. Standard for sulfur dioxide. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of two kilograms per metric ton [4 pounds per ton] of acid produced, the production being expressed as one hundred percent sulfuric acid.

d. Standard for acid mist. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain acid mist, expressed as sulfuric acid, in excess of seventy-five-thousandths kilogram per metric ton [0.15 pound per ton] of acid produced, the production being expressed as one hundred percent sulfuric acid.

(2) Exhibit ten percent opacity, or greater.

e. Emission monitoring.

(1) A continuous monitoring system for the measurement of sulfur dioxide must be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under performance specification 2 and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 shall be sulfur dioxide. ~~Reference~~ ~~m~~Method 8 must be used for conducting monitoring system performance evaluations under subdivision c of subsection 11 of section 33-15-12-01 except that only the sulfur dioxide portion of the method 8 results must be used. The span value must be set at one thousand parts per million of sulfur dioxide.

(2) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kilograms per metric ton, pounds per ~~short~~ ton). The conversion factor must be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods, e.g., the Reich test, national air pollution control administration Publication No. 999-AP-13, and calculating the appropriate conversion factor for each eight-hour period as follows:

$$CF = k \left(\frac{1.000 - 0.015r}{r - s}\right)$$

where:

CF = conversion factor (kg/metric ton per ppm, lb/~~short~~ ton per ppm).

k = constant derived from material balance. For determining CF in metric units, k = 0.0653, for determining CF in English units, k = 0.1306.

r = percentage of sulfur dioxide by volume entering the gas converter. Appropriate corrections must be made for air injection plants subject to the department's approval.

s = percentage of sulfur dioxide by volume in the emissions to the atmosphere determined by the continuous monitoring system required under paragraph 1.

(3) The owner or operator shall record all conversion factors and values under paragraph 2 from which they were computed, i.e., CF, r, and s.

(4) Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen may use the following continuous emission monitoring approach and calculation procedures in determining sulfur dioxide emission rates in terms of the standard. This procedure is not required, but is an alternative that would alleviate problems encountered in the measurement of gas velocities or production rate. Continuous emission monitoring of sulfur dioxide, oxygen, and carbon dioxide (if required) must be installed, calibrated, maintained, and operated by the owner or operator and subjected to the certification procedures in performance specifications 2 and 3. The calibration procedure and span value for this sulfur dioxide monitor must be as specified in paragraph 2 of this subdivision. The span value for carbon dioxide (if required) shall be ten percent and for oxygen shall be 20.9 percent (air). A conversion factor based on process rate data is not necessary. Calculate the sulfur dioxide emission rate as follows:

~~$E_{SO_2} = C_{SO_2} S \frac{1}{0.265 - 0.0126(O_2) - A(CO_2)}$~~

~~where:~~

~~E_{SO_2} = SO_2 emission rate kg/metric ton acid (lb/ton acid).~~

~~c_{SO_2} = SO_2 concentration kg/dscm (lb/dscf) (see table below).~~

~~S = Acid production rate factor.~~
~~= 368 dscm/metric ton acid for metric units.~~
~~= 11800 dscf/ton acid for English units.~~

~~O_2 = O_2 concentration, percent.~~

~~A = Auxiliary fuel factor.~~
~~= 0.00 for no fuel.~~
~~= 0.0226 for methane.~~
~~= 0.0217 for natural gas.~~
~~= 0.0196 for propane.~~
~~= 0.0172 for number 2 oil.~~
~~= 0.0161 for number 6 oil.~~
~~= 0.0148 for coal.~~
~~= 0.0126 for coke.~~

~~O_2 = CO_2 concentration, percent.~~

$E_S = [(C_s S)/[0.265-(0.126\ \%O_2)-(A\ \%CO_2)$

where:

E_S = emission rate of SO_2, kg/metric ton (lb/ton) of 100 percent of H_2SO_4 produced.

C_s = concentration of SO_2, kg/dscm (lb/dscf).

S = acid production rate factor, 368 dscm/metric ton (11,800 dscf/ton) of 100 percent H_2SO_4 produced.

$\%O_2$ = oxygen concentration, percent by basis.

A = auxiliary fuel factor.
= 0.00 for no fuel.
= 0.0226 for methane.
= 0.0217 for natural gas.
= 0.0196 for propane.
= 0.0172 for No. 2 oil.
= 0.0161 for No. 6 oil.
= 0.0148 for coal.
= 0.0126 for coke.

$\%CO_2$ = carbon dioxide concentration, percent dry basis.

Note: It is necessary in some cases to convert measured concentration units to other units for these calculations:

Use the following table for such conversions:

From	To	Multiply by
g/scm	kg/scm	10^{-3}
mg/scm	kg/scm	10^{-6}
ppm (SO_2)	kg/scm	2,660 x 10^{-6}
ppm (SO_2)	lb/scf	1,660 x 10^{-7}

(5) For the purpose of reports under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emission must be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under subdivision c of subsection 6.

f. Test methods and procedures.

~~(1) The reference methods in appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standards prescribed in subdivisions c and d of this subsection as follows:~~

~~(a) Method 8 for the concentrations of sulfur dioxide and acid mist.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for velocity and volumetric flow rate.~~

~~(d) Method 3 for gas analysis.~~

~~(2) The moisture content can be considered to be zero for method 8. The sampling time for each run must be at least sixty minutes and the minimum sample volume must be 1.15 dry cubic meter at standard conditions (40.6 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3) Acid production rate, expressed in metric tons per hour of one hundred percent sulfuric acid, must be determined during each testing period by suitable methods and must be confirmed by a material balance over the production system.~~

~~(4) Acid mist and sulfur dioxide emissions, expressed in grams per metric ton of one hundred percent sulfuric acid, must be determined by dividing the emission rate in grams per hour by the acid production rate. The emission rate must be determined by the equation, g/hr = $Q_s$xc, where Q_s = volumetric flow rate of the effluent in dscm/hr as determined in accordance with subparagraph c of paragraph 1 and c = acid mist and sulfur dioxide concentrations in g/dscm as determined in accordance with subparagraph a of paragraph 1.~~

~~(5) Alternatively, a source that processes elemental sulfur or an ore that contains elemental sulfur uses air to supply oxygen may use the sulfur dioxide, acid mist, oxygen, and carbon dioxide (if required) measurement date in determining sulfur dioxide and acid mist emission rates in terms of the standard. Data from the reference method tests as specified in paragraph 1 of this subdivision are required; that is, method 8 for sulfur dioxide and acid mist and method 3 for oxygen and carbon dioxide. No determinations of production rate or total gas flow rate are necessary. Calculate the sulfur dioxide and acid mist emission rate as described in paragraph 4 of subdivision e substituting the acid mist concentration for C_{SO_2} as appropriate.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Acceptable alternative methods and procedures are given in paragraph 3 of this subdivision.

(2) The owner or operator shall determine compliance with the sulfur dioxide acid mist, and visible emission standards in subdivisions c and d as follows:

(a) The emission rate (E) of acid mist or sulfur dioxide shall be computed for each run using the following equation:

$E = (C\ Q_{sd})/(P\ K)$

where:

E = emission rate of acid mist or SO_2 kg/metric ton (lb/ton) of 100 percent H_2SO_4 produced.

C = concentration of acid mist or SO_2, g/dscm (lb/dscf).

Q_{sd} = volumetric flow rate of the effluent gas, dscm/hr (dscf/hr).

P = production rate of 100 percent H_2SO_4, metric ton/hr (ton/hr).

K = conversion factor, 1000 g/kg [1.0 lb/lb].

(b) Method 8 must be used to determine the acid mist and sulfur dioxide concentrations (C's) and the volumetric flow rate (Q_{sd}) of the effluent gas. The moisture content may be considered to be zero. The sampling time and sample volume for each run must be at least sixty minutes and 1.15 dry cubic meters at standard conditions [40.6 dscf].

(c) Suitable methods must be used to determine the production rate (P) of one hundred percent H_2SO_4 for each run. Material balance over the production system must be used to confirm the production rate.

(d) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(3) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision:

If a source processes elemental sulfur or an ore that contains elemental sulfur and uses air to supply oxygen, the following procedure may be used instead of determining the volumetric flow rate and production rate:

(a) The integrated technique of method 2 is used to determine the oxygen concentration and, if required, carbon dioxide concentration.

(b) The sulfur dioxide or acid mist emission rate is calculated as described in paragraph 4 of subdivision e, substituting the acid mist concentration for C_s as appropriate.

7. **Standards of performance for asphalt concrete plants.**

a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each hot mix asphalt facility. For the purpose of this subsection, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems. Any facility that commences construction or modification after June 11, 1973, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01. "Hot mix asphalt facility" means any facility, as described in subdivision a, used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.

c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may discharge or cause the discharge into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of ninety milligrams per dry cubic meter at standard conditions [0.04 grains per dscf].

(2) Exhibit twenty percent opacity, or greater.

d. Test methods and procedures.

~~(1) The reference methods appended to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standards prescribed in subdivision c as follows:~~

~~(a) Method 5 for the concentration of particulate matter and the associated moisture content.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for velocity and volumetric flow rate.~~

~~(d) Method 3 for gas analysis.~~

~~(2) For method 5, the sampling time for each run must be at least sixty minutes and the sampling rate must be at least nine-tenths dry cubic meter at standard conditions per hour (0.53 dscf per minute) except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the particulate matter standards in subdivision c as follows:

(a) Method 5 must be used to determine the particulate matter concentration. The sampling time and sample volume for each run must be at least sixty minutes and 0.90 dry cubic meter at standard condition [31.8 dscf].

(b) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

8. **Standards of performance for petroleum refineries.**

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to the following affected facilities in petroleum refineries: fluid catalytic cracking unit catalyst regenerators, fuel gas combustion devices, and all Claus sulfur recovery plants except Claus plants of twenty long tons per day or less. The Claus sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery. Any fluid catalytic cracking unit catalyst regeneration or fuel gas combustion device which commences construction or modification after June 11, 1973, or any Claus sulfur recovery plant which commences construction or modification after October 4, 1976, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Claus sulfur recovery plant" means a process unit which recovers sulfur from hydrogen sulfide by a vapor-phase catalytic reaction of sulfur dioxide and hydrogen sulfide.

(2) "Coke burn-off" means the coke removed from the surface of the fluid catalytic cracking unit catalyst by combustion in the catalyst regenerator. The rate of coke burn-off is calculated by the formula specified in subdivision g.

(3) "Fuel gas" means any gas which is generated by a petroleum refinery process unit and which is combusted. Fuel gas also includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery. Fuel gas does not include gases generated by catalytic cracking unit catalyst regenerators and fluid coking burners.

(4) "Fuel gas combustion device" means any equipment, such as process heaters, boilers, and flares used to combust fuel gas, except

facilities in which gases are combusted to produce sulfur or sulfuric acid.

(5) "Oxidation control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to sulfur dioxide.

(6) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(7) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, or reforming of unfinished petroleum derivatives.

(8) "Process gas" means any gas generated by a petroleum refinery process unit, except fuel gas and process upset gas as defined in this subdivision.

(9) "Process upset gas" means any gas generated by a petroleum refinery process unit as a result of startup, shutdown, upset, or malfunction.

(10) "Reduced sulfur compounds" means hydrogen sulfide (H_2S), carbonyl sulfide (COS), and carbon disulfide (CS_2).

(11) "Reduction control system" means an emission control system which reduces emissions from sulfur recovery plants by coverting these emissions to hydrogen sulfide.

(12) "Refinery process unit" means any segment of the petroleum refinery in which a specific processing operation is conducted.

(13) [Reserved]

c. Standard for particulate matter.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may discharge or cause the discharge into the atmosphere from any fluid catalytic cracking unit catalyst regenerator:

(a) Particulate matter in excess of one kilogram per one thousand kilograms [1.0 pound per 1000 pounds] of coke burn-off in the catalyst regenerator.

(b) Gases exhibiting greater than thirty percent opacity, except for one 6-minute average opacity reading in any one-hour period.

(2) Where the gases discharged by the fluid catalytic cracking unit catalyst regenerator pass through an incinerator or waste heat boiler in which auxiliary or supplemental liquid or solid fossil fuel is burned, particulate matter in excess of that permitted by subparagraph a of paragraph 1 may be emitted to the atmosphere, except that the incremental rate of particulate matter emissions shall not exceed forty-three nanograms per joule [0.10 lb/million Btu] of heat input attributable to such liquid or solid fossil fuel.

d. Standard for carbon monoxide. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may discharge or cause the discharge into the atmosphere from the fluid catalytic cracking unit catalyst regenerator any gases which contain carbon monoxide in excess of five-hundredths percent by volume.

e. Standard for sulfur dioxide.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may:

(a) Burn in any fuel gas combustion device any fuel gas which contains hydrogen sulfide in excess of two hundred thirty milligrams per dry cubic meter at standard conditions [0.10 gr/dscf], except that the gases resulting from the combustion of fuel gas may be treated to control sulfur dioxide emissions provided the owner or operator demonstrates to the satisfaction of the department that this is as effective in preventing sulfur dioxide emissions to the atmosphere as restricting the hydrogen sulfide concentration in the fuel gas to two hundred thirty milligrams per dry cubic meter at standard conditions [0.10 gr/dscf] or less. The combustion in a flare of process upset gas, or fuel gas which is released to the flare as a result of relief valve leakage, is exempt from this subparagraph.

(b) Discharge or cause the discharge of any gases into the atmosphere from any Claus sulfur recovery plant containing in excess of:

[1] Twenty-five-thousandths percent by volume of sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by an oxidation control system, or a reduction control system followed by incineration; or

[2] Thirty-thousandths percent by volume of reduced sulfur compounds and one-thousandths percent by volume of hydrogen sulfide calculated as sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by a reduction control system not followed by incineration.

f. Emission monitoring.

(1) Continuous monitoring systems must be installed, calibrated, maintained, and operated by the owner or operator as follows:

(a) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator. The continuous monitoring system must be spanned at sixty, seventy, or eighty percent opacity.

(b) An instrument for continuously monitoring and recording the concentration of carbon monoxide in gases discharged into the atmosphere from fluid catalytic cracking unit catalyst regenerators. The span of this continuous monitoring system must be one thousand parts per million.

Installation of carbon monoxide continuous monitoring systems is not required if the owner or operator files a written request for exemption to the department and demonstrates, by the exemption performance test described below, that the average carbon monoxide emissions are less than ten percent of the applicable standard listed in subdivision d of this subsection. The exemption performance test shall consist of continuously monitoring carbon monoxide emissions for thirty days using an instrument that meets the requirements of performance specification 4 of appendix B, except the span value must be one hundred parts per million instead of one thousand parts per million, and if required, the relative accuracy limits shall be ten percent or five parts per million, whichever is greater.

(c) A continuous monitoring system for the measurement of sulfur dioxide in the gases discharged into the atmosphere from the combustion of fuel gases (except where a continuous monitoring system for the measurement of hydrogen sulfide is installed under subparagraph d). The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, performance specification 2, and for calibration checks under subdivision d of subsection 11 of section 33-15-12-01 must be sulfur dioxide. The span must be set at one hundred parts per million. For conducting monitoring system performance evaluations under subdivision c of subsection 11 of section 33-15-12-01, reference method 6 must be used.

(d) An instrument for continuously monitoring and recording concentrations of hydrogen sulfide in fuel gases burned in any fuel gas combustion device, if compliance with subparagraph a of paragraph 1 of subdivision e is achieved by removing hydrogen sulfide from the fuel gas before it is burned; fuel gas combustion devices having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of hydrogen sulfide in the fuel gas burned. The span of this continuous monitoring system must be three hundred parts per million.

(e) An instrument for continuously monitoring and recording concentrations of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with subparagraph b of paragraph 1 of subdivision e is achieved through the use of an oxidation control system or a reduction control system followed by incineration. The span of this continuous monitoring system must be set at five hundred parts per million.

(f) An instrument or instruments for continuously monitoring and recording the concentration of hydrogen sulfide and reduced sulfur compounds in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with subparagraph b of paragraph 1 of subdivision e is achieved through the use of a reduction control system not followed by incineration. The span or spans of this continuous monitoring system or systems must be set at twenty parts per million for monitoring and recording the concentration of hydrogen sulfide and six hundred parts per million for monitoring and recording the concentration of reduced sulfur compounds.

(2) [Reserved]

(3) The average coke burn-off rate (thousands of kilograms per hour) and hours of operation for any fluid catalytic cracking unit catalyst regenerator subject to subdivisions c and d must be recorded daily.

(4) For any fluid catalytic cracking unit catalyst regenerator which is subject to subdivision c and which utilizes an incinerator-waste heat boiler to combust the exhaust gases from the catalyst regenerator, the owner or operator shall record daily the rate of combustion of liquid or solid fossil fuels (liters per hour or kilograms per hour) and the hours of operation during which liquid or solid fossil fuels are combusted in the incinerator-waste heat boiler.

(5) For the purpose of reports under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that must be reported are defined as follows:

(a) Opacity. All one-hour periods which contain two or more six-minute periods during which the average opacity as measured by the continuous monitoring system exceeds thirty percent.

(b) Carbon monoxide. All hourly periods during which the average carbon monoxide concentration in the gases discharged into the atmosphere from any fluid catalytic cracking unit catalyst regenerator subject to subdivision d of subsection 8 exceeds five-hundredths percent by volume.

(c) Sulfur dioxide.

[1] Any three-hour period during which the average concentration of hydrogen sulfide in any fuel gas combusted in any fuel gas combustion device subject to subparagraph a of paragraph 1 of subdivision e exceeds two hundred thirty milligrams per dry cubic meter at standard conditions [0.10 gr/dscf], if compliance is achieved by removing hydrogen sulfide from the fuel gas before it is burned; or any three-hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any fuel gas combustion device subject to subparagraph a of paragraph 1 of subdivision e exceeds the level specified in subparagraph a of paragraph 1 of subdivision e if compliance is achieved by removing sulfur dioxide from the combusted fuel gases.

[2] Any twelve-hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to subparagraph b of paragraph 1 of

subdivision e exceeds two hundred fifty parts per million at zero percent oxygen on a dry basis if compliance with paragraph 2 of subdivision e is achieved through the use of an oxidation control system or a reduction control system followed by incineration; or any twelve-hour period during which the average concentration of hydrogen sulfide, or reduced sulfur compounds in the gases discharged into the atmosphere of any Claus sulfur plant subject to item 2 of subparagraph b of paragraph 1 of subdivision e exceeds ten parts per million or three hundred parts per million, respectively, at zero percent oxygen and on a dry basis if compliance is achieved through the use of a reduction control system not followed by incineration.

(d) Any six-hour period during which the average emissions (arithmetic average of six contiguous one-hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the standard under subdivision e of this subsection.

g. Test methods and procedures.

(1) For the purpose of determining compliance with subparagraph a of paragraph 1 of subdivision c of this subsection, the following reference methods and calculation procedures must be used:

(a) For gases released to the atmosphere from the fluid catalytic cracking unit catalyst regenerator:

[1] Method 5B or 5F is to be used to determine particulate matter emissions and associated moisture content from affected facilities without wet FGD systems; only method 5B is to be used after wet FGD systems.

[2] Method 1 for sample and velocity traverses.

[3] Method 2 for velocity and volumetric flow rate.

(b) For method 5B or 5F, the sampling time for each run must be at least sixty minutes and the sampling rate must be at least fifteen-thousandths dry cubic meter at standard conditions per minute [0.53 dscf per minute], except that shorter sampling times may be approved by the department when process variables or other factors preclude sampling for at least sixty minutes.

(c) For exhaust gases from the fluid catalytic cracking unit catalyst regenerator prior to the emission control system: the integrated sample techniques of method 3 and method 4 for gas analysis and moisture content, respectively; method 1 for velocity traverses; and method 2 for velocity and volumetric flow rate.

(d) Coke burn-off rate must be determined by the following formula:

$$R_c = 0.2982\ Qre(\%CO_2+\%CO)+2.088\ Qra-0.0994Qre\ \left(\frac{\%CO}{2}+\%CO_2+\%O_2\right)$$

(metric units)

or

$$R_c = 0.0186\ Qre(\%CO_2+\%CO)+0.1303\ Qra-0.0062Qre\ \left(\frac{\%CO}{2}+\%CO_2+\%O_2\right)$$

(English units)

where:

R_c = coke burn-off rate, kg/hr [English units: lb/hr].

0.2982 = metric units material balance factor divided by 100, kg-min/hr-m^3.

0.0186 = English units material balance factor divided by 100, lb-min/hr-ft^3.

Qre = fluid catalytic cracking unit catalyst regenerator exhaust gas flow rate before entering the emission control system, as determined by method 2, dscm/min [English units: dscf/min].

$\%CO_2$ = percent carbon dioxide by volume, dry basis, as determined by method 3.

$\%CO$ = percent carbon monoxide by volume, dry basis, as determined by method 3.

$\%O_2$ = percent oxygen by volume, dry basis, as determined by method 3.

2.088 = metric units material balance factor divided by 100, kg-min/hr-m^3.

0.1303 = English units material balance factor divided by 100, lb-min/hr-ft^3.

Qra = air rate to fluid catalytic cracking unit catalyst regenerator, as determined from fluid catalytic cracking unit control room instrumentation dscm/min [English units: dscf/min].

0.0994 = metric units material balance factor divided by 100, kg-min/hr-m^3.

0.0062 = English units material balance factor by 100, lb-min/hr-ft^3.

(e) Particulate emissions must be determined by the following equation:

$$R_E = (60\times10^{-6}) Q_{rv} C_3 \text{ [metric units]}$$

$$R_E = (8.57\times10^{-3}) Q_{rv} C_3 \text{ [English units]}$$

where:

R_E = particulate emission rate, kg/hr [English units: lb/hr].

60×10^{-6} = metric units conversion factor, min-kg/hr-mg.

8.57×10^{-3} = English units conversion factor, min-lb/hr-gr.

Qrv = volumetric flow rate of gases discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator following the emission control system, as determined by method 2, dscm/min [English units: dscf/min].

C_3 = particulate emission concentration discharged into the atmosphere, as determined by method 5, mg/dscm [English units: gr/dscf].

(f) For each run, emissions expressed in kilograms [English units: pounds per one thousand pounds] of coke burn-off in the catalyst regenerator must be determined by the following equation:

$$R_S = 1000\frac{R_E}{R_C} \text{ (metric or English units)}$$

where:

R_S = particulate emission rate, kilograms per one thousand kilograms [English units: pounds per one thousand pounds] of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1000 = conversion factor, kilograms to one thousand kilograms [English units: pounds to one thousand pounds].

R_E = particulate emission rate, kilograms per hour [English units: pounds per hour].

R_C = coke burn-off rate, kilograms per hour [English units: pounds per hour].

(g) In those instances in which auxiliary liquid or solid fossil fuels are burned in an incinerator-waste heat boiler, the rate of particulate matter emissions permitted under paragraph 2 of subdivision c must be determined. Auxiliary fuel heat input, expressed in millions of calories per hour [English units: millions of Btu per hour] must be calculated for each run by fuel flow rate measurement and analysis of the liquid or solid auxiliary fossil fuels. For each run, the rate of particulate emissions permitted under paragraph 2 of subdivision c must be calculated from the following equation:

$$R_s = 1.0 + \frac{0.18\ H}{R_c} \text{ (metric units)}$$

or

$$R_s = 1.0 + \frac{0.10\ H}{R_c} \text{ (English units)}$$

where:

R_s = allowable particulate emission rate, kilograms per one thousand kilograms [English units: pounds per one thousand pounds] of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1.0 = emission standard, one kilogram per one thousand kilograms [English units: one pound per one thousand pounds] of coke burn-off in the fluid catalytic cracking unit regenerator.

0.18 = metric units maximum allowable incremental rate of particulate emissions, grams per million calories.

0.10 = English units maximum allowable incremental rate of particulate emissions, pounds per million Btu.

H = heat input from solid or liquid fossil fuel, million calories per hour [English units: million Btu per hour].

R_c = coke burn-off rate, kilograms per hour [English units: pounds per hour].

(2) For the purpose of determining compliance with subdivision d, the integrated sample technique of method 10 must be used. The sample must be extracted at a rate proportional to the gas velocity at a sampling point near the centroid of the duct. The sampling time may not be less than sixty minutes.

(3) For the purpose of determining compliance with subparagraph a of paragraph 1 of subdivision

e, method 11 must be used to determine the concentration of hydrogen sulfide and method 6 must be used to determine the concentration of sulfur dioxide.

(a) If method 11 is used, the gases sampled must be introduced into the sampling train at approximately atmospheric pressure. Where refinery fuel gaslines are operating at pressures substantially above atmosphere, this may be accomplished with a flow control valve. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample must be drawn from a point near the centroid of the fuel gasline. The minimum sampling time must be ten minutes and the minimum sampling volume one-hundredths dry cubic meter at standard conditions [0.35 dscf] for each sample. The arithmetic average of two samples of equal sampling time shall constitute one run. Samples must be taken at approximately one-hour intervals. For most fuel gases, sample times exceeding twenty minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of hydrogen sulfide may necessitate sampling for longer periods of time.

(b) If method 6 is used, method 1 must be used for velocity traverses and method 2 for determining velocity and volumetric flow rate. The sampling site for determining sulfur dioxide concentration by method 6 must be the same as for determining volumetric flow rate by method 2. The sampling point in the duct for determining sulfur dioxide concentration by method 6 must be at the centroid of the cross section if the cross sectional area is less than five square meters [54 square feet] or at a point no closer to the walls than one meter [39 inches] if the cross sectional area is five square meters [54 square feet] or more and the centroid is more than one meter [39 inches] from the wall. The sample must be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time must be ten minutes and the minimum sampling volume one-hundredths dry cubic meter at standard conditions [0.35 dscf] for each sample. The arithmetic average of two samples of equal sampling time must constitute one run. Samples must be taken at approximately one-hour intervals.

(4) For the purpose of determining compliance with subparagraph b of paragraph 1 of subdivision e, method 6 must be used to determine the concentration of sulfur dioxide and method 15 must be used to determine the concentration of hydrogen sulfide and reduced sulfur compounds. Method 15A may be used as an alternative method for determining reduced sulfur compounds.

(a) If method 6 is used, the procedure outlined in subparagraph b of paragraph 3 must be followed except that each run shall span a minimum of four consecutive hours of continuous sampling. A number of separate samples may be taken for each run, provided the total sampling time of these samples adds up to a minimum of four consecutive hours. Where more than one sample is used, the average sulfur dioxide concentration for the run shall be calculated as the time weighted average of the sulfur dioxide concentration for each sample according to the formula:

$$C_R = \sum_{i=1}^{N} Csi \frac{tsi}{T}$$

where:

C_R = SO_2 concentration for the run.

N = number of samples.

C_{S_i} = SO_2 concentration for sample i.

t_{S_i} = continuous sampling time of sample i.

T = total continuous sampling time of all N samples.

(b) If method 15 is used, each run shall consist of sixteen samples taken over a minimum of three hours. If method 15A is used, each run shall consist of one 3-hour sample, or three 1-hour samples. The sampling point must be at the centroid of the cross section of the duct if the cross sectional area is less than five square meters [54 square feet] or at a point no closer to the walls than one meter [39 inches] if the cross sectional area is five square meters [54 square feet] or more and the centroid is more than one meter [39 inches] from the wall. For method 15, to ensure minimum residence time for the sample inside the sample lines, the sampling rate must be at least three liters per minute [0.1 cubic foot per minute]. The sulfur dioxide equivalent for each run must be calculated as the arithmetic average of the sulfur dioxide equivalent of each sample during the run. Reference method 4 must be used to determine the moisture content of the gases when using method 15. The sampling point for method 4 shall be adjacent to the sampling point for method 15. The sample must be extracted at a rate proportional to the gas velocity at the sampling point. Each run must span a minimum of four consecutive hours of continuous sampling. A number of separate samples may be taken for each run provided the total sampling time of these samples adds up to a minimum of four consecutive hours. Where more than one sample is used, the average moisture content for the run must be calculated as the time weighted average of the moisture content of each sample according to the formula:

$$B_{wo} = \sum_{v=1}^{N} B_{si} \frac{t_{si}}{T}$$

where:

B_{wo} = proportion by volume of water vapor in the gas stream for the run.

N = number of samples.

B_{si} = proportion by volume of water vapor in the gas stream for the sample i.

t_{si} = continuous sampling time for sample i.

T = total continuous sampling time of all N samples.

~~(5) An owner or operator of an affected facility may request the department to determine opacity of emissions from the affected facility during any performance test covered under subsection 7 of section 33-15-12-01. In such event the provisions of paragraphs 2, 3, and 4 of subdivision e of subsection 9 of section 33-15-12-01 shall apply.~~

9. **Standards of performance for storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after July 1, 1970, and prior to May 19, 1978.**

a. Applicability and designation of affected facility.

(1) Except as provided in paragraph 2, the affected facility to which this subsection applies is each storage vessel for petroleum liquids which has a storage capacity greater than one hundred fifty-one thousand four hundred twelve liters [40,000 gallons].

(2) This subsection does not apply to storage vessels for petroleum or condensate stored, processed, or treated at a drilling and production facility prior to custody transfer.

(3) Any facility under paragraph 1 that commenced construction, reconstruction, or modification after July 1, 1970, and prior to May 19, 1978, is subject to the requirements of this subsection.

b. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

(2) "Custody transfer" means the transfer of produced petroleum or condensate, or both, after processing or treating, or both, in the

producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

(3) "Drilling and production facility" means all drilling and servicing equipment, wells, flow lines, separators, equipment, gathering lines, and auxiliary non-transportation-related equipment used in the production of petroleum but does not include natural gasoline plants.

(4) "Floating roof" means a storage vessel cover consisting of a double deck, pontoon single deck, internal floating cover or covered floating roof, which rests upon and is supported by the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank wall.

(5) "Hydrocarbon" means any organic compound consisting predominantly of carbon and hydrogen.

(6) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(7) "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils as specified in A.S.T.M. D396-78, gas turbine fuel oils Numbers 2-GT through 4-GT as specified in A.S.T.M. D2880-78, or diesel fuel oils Numbers 2-D and 4-D as specified in A.S.T.M. D975-78.

(8) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, or reforming of unfinished petroleum derivatives.

(9) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquefied petroleum gases, as determined by A.S.T.M. D323-82.

(10) "Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, but does not include:

(a) Pressure vessels which are designed to operate in excess of fifteen pounds [6.80 kilograms] per square inch [6.45 square centimeters] gauge without emissions to the atmosphere except under emergency conditions.

(b) Subsurface caverns or porous rock reservoirs.

(c) Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.

(11) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American petroleum institute bulletin 2517, Evaporation Loss from External Floating Roof Tanks, Second Edition, February 1980.

(12) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from the storage vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.

c. Standard for volatile organic compounds (VOC). The owner or operator of any storage vessel to which this subsection applies shall store petroleum liquids as follows:

(1) If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than seventy-eight millimeters mercury [1.5 pounds per square inch absolute] but not greater than five hundred seventy millimeters mercury [11.1 pounds per square inch absolute], the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.

(2) If the true vapor pressure of the petroleum liquid as stored is greater than five hundred seventy millimeters mercury [11.1 pounds per square inch absolute], the storage vessel must be equipped with a vapor recovery system or its equivalent.

d. Monitoring of operations.

(1) Except as provided in paragraph 4, the owner or operator of any storage vessel to which this subsection applies shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period.

(2) Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in American petroleum institute Bulletin 2517, unless the department specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample.

(3) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kilopascals [2.0 psia] or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kilopascals [1.0 psia].

(4) The following are exempt from the requirements of this subdivision:

  (a) Each owner or operator of each affected facility which stores petroleum liquids with a Reid vapor pressure of less than 6.9 kilopascals [1.0 psia] provided the maximum true vapor pressure does not exceed 6.9 kilopascals [1.0 psia].

  (b) Each owner or operator of each affected facility equipped with a vapor recovery and return or disposal system in accordance with the requirements of subdivision c.

10. **Standards of performance for storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 18, 1978, and prior to July 23, 1984.**

a. Applicability and designation of affected facility.

(1) The affected facility to which this subsection applies is each storage vessel for petroleum

liquids which has a storage capacity greater than one hundred fifty-one thousand four hundred sixteen liters [40,000 gallons] and for which construction is commenced after May 18, 1978.

(2) Each petroleum liquid storage vessel with a capacity of less than one million five hundred eighty-nine thousand eight hundred seventy-three liters [420,000 gallons] used for petroleum or condensate stored, processed, or treated prior to custody transfer is not an affected facility and, therefore, is exempt from the requirements of this subsection.

b. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

(2) "Custody transfer" means the transfer of produce petroleum or condensate, or both, after processing or treating, or both, in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

(3) "Liquid-mounted seal" means a foam or liquid-filled primary seal mounted in contact with the liquid between the tank wall and the floating roof continuously around the circumference of the tank.

(4) "Metallic shoe seal" includes, but is not limited to, a metal sheet held vertically against the tank wall by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

(5) "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean numbers 2 through 6 fuel oil as specified in A.S.T.M. D396-78, gas turbine fuel oils numbers 2-GT through 4-GT as specified in A.S.T.M. D2880-78, or diesel fuel

oils numbers 2-D and 4-D as specified in A.S.T.M. D975-78.

(6) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(7) "Petroleum refinery" means each facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, extracting, or reforming of unfinished petroleum derivatives.

(8) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and nonviscous petroleum liquids, except liquefied petroleum gases, as determined by A.S.T.M. D323-82.

(9) "Storage vessel" means each tank, reservoir, or container used for the storage of petroleum liquids, but does not include:

(a) Pressure vessels which are designed to operate in excess of 204.9 kilopascals [15 psi~~a~~g] without emissions to the atmosphere except under emergency conditions;

(b) Subsurface caverns or porous rock reservoirs; or

(c) Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.

(10) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid such as determined in accordance with methods described in American petroleum institute bulletin 2517, Evaporation Loss from External Floating Roof Tanks, Second Edition, February 1980.

(11) "Vapor-mounted seal" means a foam-filled primary seal mounted continuously around the circumference of the tank so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

c. Standard for volatile organic compounds.

(1) The owner or operator of each storage vessel to which this subsection applies which contains a petroleum liquid which, as stored, has a true vapor pressure equal to or greater than 10.3 kilopascals [1.5 psia] but not greater than 76.6 kilopascals [11.1 psia] shall equip the storage vessel with one of the following:

(a) An external floating roof, consisting of a pontoon-type or double-deck-type cover that rests on the surface of the liquid contents and is equipped with a closure device between the tank wall and the roof edge. Except as provided in subitem d of item 2 of subparagraph a of paragraph 1 of this subdivision, the closure device is to consist of two seals, one above the other. The lower seal is referred to as the primary seal and the upper seal is referred to as the secondary seal. The roof is to be floating on the liquid at all times (i.e., off the roof leg supports) except during initial fill and when the tank is completely emptied and subsequently filled. The process of emptying and refilling when the roof is resting on the leg supports must be continuous and must be accomplished as rapidly as possible.

[1] The primary seal is to be either a metallic shoe seal, a liquid-mounted seal, or a vapor-mounted seal. Each seal is to meet the following requirements:

[a] The accumulated area of gaps between the tank wall and the metallic shoe seal or the liquid-mounted seal may not exceed two hundred twelve cm^2 per meter of tank diameter [10.0 in^2 per ft or tank diameter] and the width of any portion of any gap may not exceed 3.81 cm [1 1/2 in].

[b] The accumulated area of gaps between the tank wall and the vapor-mounted seal may not

exceed 21.2 cm^2 per meter of tank diameter [1.0 in^2 per ft of tank diameter] and the width of any portion of any gap may not exceed 1.27 cm [1/2 in].

    [c] One end of the metallic shoe is to extend into the stored liquid and the other end is to extend a minimum vertical distance of sixty-one cm [24 in] above the stored liquid surface.

    [d] There are to be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope.

[2] The secondary seal is to meet the following requirements:

    [a] The secondary seal is to be installed above the primary seal so that it completely covers the space between the roof edge and the tank wall except as provided in subitem b of item 2 of subparagraph a of paragraph 1 of this subdivision.

    [b] The accumulated area of gaps between the tank wall and the secondary seal used in combination with a metallic show or liquid-mounted primary seal may not exceed 21.2 cm^2 per meter of tank diameter [1.0 in^2 per ft of tank diameter] and the width of any portion of any gap may not exceed 1.27 centimeters [1/2 in]. There may be no gaps between the tank wall and the secondary seal used in combination with a vapor-mounted primary seal.

    [c] There are to be no holes, tears, or other openings in the seal or seal fabric.

    [d] The owner or operator is exempted from the requirements

for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal.

[3] Each opening in the roof except for automatic bleeder vents and rim space vents is to provide a projection below the liquid surface. Each opening in the roof except for automatic bleeder vents, rim space vents, and leg sleeves is to be equipped with a cover, seal, or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use or as described in item 4 of subparagraph a of paragraph 1 of this subdivision. Automatic bleeder vents are to be closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the roof leg supports. Rim vents are to be set to open when the roof is being floated off the roof legs supports or at the manufacturer's recommended setting.

[4] Each emergency roof drain is to be provided with a slotted membrane fabric cover that covers at least ninety percent of the area of the opening.

(b) A fixed roof with an internal floating-type cover equipped with a continuous closure device between the tank wall and the cover edge. The cover is to be floating at all times, (i.e., off the leg supports) except during initial fill and when the tank is completely emptied and subsequently refilled. The process of emptying and refilling when the cover is resting on the leg supports must be continuous and must be accomplished as rapidly as possible. Each opening in the cover except for automatic bleeder vents and the rim space vents is to provide a projection below the liquid surface. Each opening in the cover except for automatic bleeder vents, rim space vents, stub drains, and leg sleeves is to be equipped with a cover, seal, or lid which is to be maintained in a closed position at all times (i.e., no visible gap), except when the device is in actual use. Automatic bleeder vents are to be closed at all times when the cover is floating except when the cover is being floated off or is being landed on the leg supports. Rim vents are to be set to open only when the cover is being floated off the leg supports or at the manufacturer's recommended setting.

(c) A vapor recovery system which collects all volatile organic compounds vapors and gases discharged from the storage vessel, and a vapor return or disposal system which is designed to process such volatile organic compounds vapors and gases so as to reduce their emission to the atmosphere by at least ninety-five percent by weight.

(d) A system equivalent to those described in subparagraph a, b, or c of paragraph 1 of this subdivision as provided in subdivision e.

(2) The owner or operator of each storage vessel to which this subsection applies which contains a petroleum liquid which, as stored, has a true vapor pressure greater than 76.6 kilopascals [11.1 psia] shall equip the storage vessel with a vapor recovery system which collects all volatile organic compounds vapors and gases discharged from the storage vessel, and a vapor return or disposal system which is designed to process such volatile organic compounds vapors and gases so as to reduce their emission to the atmosphere by at least ninety-five percent by weight.

d. Testing and procedures.

(1) Except as provided in subdivision b of subsection 7 of section 33-15-12-01, compliance with the standard prescribed in subdivision c must be determined as follows or in accordance with an equivalent procedure as provided in subdivision e.

(a) The owner or operator of each storage vessel to which this subsection applies which has an external floating roof shall meet the following requirements:

  [1] Determine the gap areas and maximum gap widths between the primary seal and the tank wall and between the secondary seal and the tank wall according to the following frequency:

    [a] For primary seals, gap measurements shall be performed within sixty days of the initial fill with petroleum liquid and at least once every five years thereafter. All primary seal inspections or gap measurements which require the removal or dislodging of the secondary seal must be accomplished as rapidly as possible and the secondary seal must be replaced as soon as possible.

    [b] For secondary seals, gap measurements must be performed within sixty days of the initial fill with petroleum liquid and at least once every year thereafter.

    [c] If any storage vessel is out of service for a period of one year or more, subsequent refilling with petroleum liquid must be considered initial fill for the purposes of subitems a and b of item 1 of subparagraph a of paragraph 1 of this subdivision.

  [2] Determine gap widths in the primary and secondary seals individually by the following procedures:

    [a] Measure seal gaps, if any, at one or more floating roof levels when the roof is floating off the roof leg supports.

    [b] Measure seal gaps around the entire circumference of the tank in each place where a one-eighth-inch diameter

uniform probe passes freely (without forcing or binding against seal) between the seal and the tank wall and measure the circumferential distance of each such location.

[c] The total surface area of each gap described in subitem b of item 2 of subparagraph a of paragraph 1 of this subdivision must be determined by using probes of various widths to accurately measure the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.

[d] Keep records of each gap measurement at the plant for a period of at least two years following the date of measurement. Each record shall identify the vessel on which the measurement was performed and shall contain the date of the seal gap measurement, the raw data obtained in the measurement process required by item 2 of subparagraph a of paragraph 1 of this subdivision and the calculation required by item 3 of subparagraph a of paragraph 1 of this subdivision.

[e] If either the seal gap calculated in accord with item 3 of subparagraph a of paragraph 1 of this subdivision or the measured maximum seal gap exceeds the limitations specified by subdivision c of this subsection, a report shall be furnished to the department within sixty days of the date of measurements. The report shall identify the vessel and list each reason why the vessel did not meet the specifications of subdivision c of this subsection. The report shall also describe the actions necessary to bring the storage vessel into compliance with the specifications of subdivision c of this subsection.

[3] Add the gap surface area of each gap location for the primary seal and the secondary seal individually. Divide the

sum for each seal by the nominal diameter of the tank and compare each ratio to the appropriate ratio in the standard in items 1 and 2 of subparagraph a of paragraph 1 of subdivision c.

[4] Provide the department thirty days' prior notice of the gap measurement to afford the department the opportunity to have an observer present.

(b) The owner or operator of each storage vessel to which this subsection applies which has a vapor recovery and return or disposal system shall provide the following information to the department on or before the date on which construction of the storage vessel commences:

[1] Emission data, if available, for a similar vapor recovery and return or disposal system used on the same type of storage vessel, which can be used to determine the efficiency of the system. A complete description of the emission measurement method used must be included.

[2] The manufacturer's design specifications and estimated emission reduction capability of the system.

[3] The operation and maintenance plan for the system.

[4] Any other information which will be useful to the department in evaluating the effectiveness of the system in reducing volatile organic compounds emissions.

e. Alternative means of emission limitation.

(1) If, in the department's and administrator's judgment, an alternative means of emission limitation will achieve a reduction in emissions at least equivalent to the reduction in emissions achieved by any requirement in subdivision c, the department and administrator will publish a notice permitting the use of the alternative means for purposes of compliance with that requirement.

(2) Any notice under paragraph 1 of this subdivision will be published only after notice and an opportunity for a hearing.

(3) Any person seeking permission under this section shall submit to the department and administrator a written application including:

(a) An actual emissions test that uses a full-sized or scale-model storage vessel that accurately collects and measures all volatile organic compound emissions from a given control device and that accurately simulates wind and accounts for other emission variables such as temperature and barometric pressure.

(b) An engineering evaluation that the department determines is an accurate method of determining equivalence.

(4) The department and administrator may condition the permission on requirements that may be necessary to ensure operation and maintenance to achieve the same emissions reduction as specified in subdivision c.

(5) The primary vapor-mounted seal in the "volume-maximizing seal" manufactured by R.F.I. services corporation is approved as equivalent to the vapor-mounted seal required by item 1 of subparagraph a of paragraph 1 of subdivision c and must meet the gap criteria specified in subitem b of item 1 of subparagraph a of paragraph 1 of subdivision c. There shall be no gaps between the tank wall and any secondary seal used in conjunction with the primary seal in the "volume-maximizing seal".

f. Monitoring of operations.

(1) Except as provided in paragraph 4 of this subdivision, the owner or operator subject to this subsection shall maintain a record of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period.

(2) Available data on the typical Reid vapor pressure and the maximum expected storage temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in American petroleum institute bulletin 2517, unless the department specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the samples.

(3) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kilopascals [2.0 psia] or whose physical properties preclude determination by the recommended method is to be determined from available data and recorded if the estimated true vapor pressure is greater than 6.9 kilopascals [1.0 psia].

(4) The following are exempt from the requirements of this subdivision:

   (a) Each owner or operator of each storage vessel storing a petroleum liquid with a Reid vapor pressure of less than 6.9 kilopascals [1.0 psia] provided the maximum true vapor pressure does not exceed 6.9 kilopascals [1.0 psia].

   (b) Each owner or operator of each storage vessel equipped with a vapor recovery and return or disposal system in accordance with the requirements of subparagraph c of paragraph 1 and paragraph 2 of subdivision c.

11. **Standards of performance for volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after July 23, 1984.**

a. Applicability and designation of affected facility.

(1) Except as provided in paragraphs 2, 3, and 4 of this subdivision, the affected facility to which this subsection applies is each storage vessel with a capacity greater than or equal to forty cubic meters (m^3) that is used to store volatile organic liquids (VOLs) for which construction, reconstruction, or modification is commenced after July 23, 1984.

(2) Except as specified in paragraphs 1 and 2 of subdivision g, storage vessels with design capacity less than seventy-five cubic meters are exempt from the general provisions (section 33-15-12-01) and from the provisions of this subsection.

(3) Except as specified in paragraphs 2 and 3 of subdivision g, vessels either with a capacity greater than or equal to one hundred fifty-one cubic meter storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals or with a capacity greater than or equal to seventy-five cubic meters but less than one hundred fifty-one cubic meters storing a liquid with a maximum true vapor pressure less than 15.0 kilopascals are exempt from the general provisions (section 33-15-12-01) and from the provisions of this subsection.

(4) This subsection does not apply to the following:

    (a) Vessels at coke oven byproduct plants.

    (b) Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

    (c) Vessels permanently attached to mobile vehicles such as trucks, railcars, barges, or ships.

    (d) Vessels with a design capacity less than or equal to 1,589.874 cubic meters used for petroleum or condensate stored, processed, or treated prior to custody transfer.

    (e) Vessels located at bulk gasoline plants.

    (f) Storage vessels located at gasoline service stations.

    (g) Vessels used to store beverage alcohol.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and subsection 2 of section 33-15-12-01.

(1) "Bulk gasoline plant" means any gasoline distribution facility that has a gasoline throughput less than or equal to seventy-five thousand seven hundred liters per day. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under federal requirement or federal, state, or local law, and discoverable by the department and any other person.

(2) "Condensate" means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure, or both, and remains liquid at standard conditions.

(3) "Custody transfer" means the transfer of produced petroleum or condensate, or both, after processing or treatment, or both, in the producing operations, from storage vessels or automatic transfer facilities to pipelines or any other forms of transportation.

(4) "Fill" means the introduction of volatile organic liquids (VOL) into a storage vessel but not necessarily to complete capacity.

(5) "Gasoline service station" means any site where gasoline is dispensed to motor vehicle fuel tanks from stationary storage tanks.

(6) "Maximum true vapor pressure" means the equilibrium partial pressure exerted by the stored liquid at the temperature equal to the highest calendar-month average of the liquid storage temperature for liquids stored above or below the ambient temperature or at the local maximum monthly average temperature as reported by the National Weather Service for liquids stored at the ambient temperature, as determined:

(a) In accordance with methods described in American petroleum institute bulletin 2517, evaporation loss from external floating roof tanks; or

(b) As obtained from standard reference texts; or

(c) As determined by A.S.T.M. Method D2879-83;

(d) Any other method approved by the department and administrator.

(7) "Reid vapor pressure" means the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquefied petroleum gases, as determined by ASTM D323-82.

(8) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sand, shale, and coal.

(9) "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery.

(10) "Storage vessel" means each tank, reservoir, or container used for the storage of volatile organic liquids but does not include:

(a) Frames, housing, auxiliary supports, or other components that are not directly involved in the containment of liquids or vapors; or

(b) Subsurface caverns or porous rock reservoirs.

(11) "Volatile organic liquid" (VOL) means any organic liquid which can emit volatile organic compounds into the atmosphere except those volatile organic liquids (VOLs) that emit only those compounds which the department has determined do not contribute appreciably to the formation of ozone. These compounds are identified in environmental protection agency statements on ozone abatement policy for SIP revisions (42 FR 35314, 44 FR 32042, 45 FR 32424, and 45 FR 48941).

(12) "Waste" means any liquid resulting from industrial, commercial, mining or agricultural operations, or from community activities that is discarded or is being accumulated, stored, or physically, chemically, or biologically treated prior to being discarded or recycled.

c. Standard for volatile organic compounds (VOC).

(1) The owner or operator of each storage vessel either with a design capacity greater than or equal to one hundred fifty-one cubic meters containing a volatile organic liquid (VOL) that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kilopascals but less than 76.6 kilopascals or with a design capacity greater than or equal to seventy-five cubic meters but less than one hundred fifty-one cubic meters containing a volatile organic liquid (VOL) that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kilopascals but less than 76.6 kilopascals shall equip each storage vessel with one of the following:

(a) A fixed roof in combination with an internal floating roof meeting the following specifications:

[1] The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

[2] Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

[a] A foam-or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam-or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

[b] Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

[c] A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

[3] 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.

[4] Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

[5] Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

[6] Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

[7] Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least ninety percent of the opening.

[8] Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

[9] Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

(b) An external floating roof. An external floating roof means a pontoon-type or double-deck type cover that rests on the liquid surface in a vessel with no fixed roof. Each external floating roof must meet the following specifications:

[1] Each external floating roof shall be equipped with a closure device between the wall of the storage vessel and the roof edge. The closure device is to consist of two seals, one above the other. 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 shall be either a mechanical shoe seal or a liquid-mounted seal. Except as provided in subparagraph d of paragraph 2 of subdivision d, the seal shall completely cover the annular space between the edge of the floating roof and tank wall.

[b] The secondary seal shall completely cover the annular space between the external floating roof and the wall of the storage vessel in a continuous fashion except as allowed in subparagraph d of paragraph 2 of subdivision d.

[2] Except for automatic bleeder vents and rim space vents, each opening in a noncontact external floating roof shall provide a projection below the liquid surface. Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof is to be equipped with a gasketed cover, seal, or lid that is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. Automatic bleeder vents are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. Rim vents are to be set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting. Automatic bleeder vents and rim space vents are to be gasketed. Each emergency roof drain is to be provided with a slotted membrane fabric cover that covers at least ninety percent of the area of the opening.

[3] The roof shall be floating on the liquid at all times (i.e., off the roof leg supports) except during initial fill until the roof is lifted off leg supports and when the tank is completely emptied and subsequently refilled. The process of filling, emptying, or refilling when the roof is resting on the leg supports shall be continuous and shall be accomplished as rapidly as possible.

(c) A closed vent system and control device meeting the following specifications:

[1] The closed vent system shall be designed to collect all volatile organic compounds (VOC) vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than five hundred parts per million above background and visual inspections, as determined in subsection 25.

[2] The control device shall be designed and operated to reduce inlet volatile organic compounds (VOC) emissions by ninety-five percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements of subsection 14 of section 33-15-12-01.

(d) A system equivalent to those described in subparagraph a, b, or c of paragraph 1 of this subdivision as provided in subdivision e of this subsection.

(2) The owner or operator of each storage vessel with a design capacity greater than or equal to seventy-five cubic meters which contains a volatile organic liquid (VOL) that, as stored, has a maximum true vapor pressure greater than or equal to 76.6 kilopascals shall equip each storage vessel with one of the following:

(a) A closed vent system and control device as specified in subparagraph c of paragraph 1 of subdivision c.

(b) A system equivalent to that described in subparagraph a of paragraph 2 as provided in subdivision e of this subsection.

d. Testing and procedures. The owner or operator of each storage vessel as specified in paragraph 1 of subdivision c shall meet the requirements of paragraph 1, 2, or 3 of this subdivision. The applicable paragraph for a particular storage vessel depends on the control equipment installed to meet the requirements of subdivision c.

(1) After installing the control equipment required to meet subparagraph a of paragraph 1

of subdivision c (permanently affixed roof and internal floating roof), each owner or operator shall:

(a) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with volatile organic liquids (VOL). If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

(b) For vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least one every twelve months after initial fill. If the internal floating roof is not resting on the surface of the volatile organic liquids (VOL) inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within forty-five days. If a failure that is detected during inspections required in this paragraph cannot be repaired within forty-five days and if the vessel cannot be emptied within forty-five days, a thirty-day extension may be requested from the department in the inspection report required in subparagraph c of paragraph 1 of subdivision f. Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

(c) For vessels equipped with a double-seal system as specified in subitem b of item 2 of subparagraph a of paragraph 1 of subdivision c:

[1] Visually inspect the vessel as specified in subparagraph d of paragraph 1 of this subdivision at least every five years; or

[2] Visually inspect the vessel as specified in subparagraph b of paragraph 1 of this subdivision.

(d) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes (if any), and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than ten percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with volatile organic liquids (VOL). In no event shall inspections conducted in accordance with this provision occur at intervals greater than ten years in the case of vessels conducting the annual visual inspection as specified in subparagraph b of paragraph 1 of this subdivision and at intervals no greater than five years in the case of vessels specified in subparagraph c of paragraph 1 of this subdivision.

(e) Notify the department in writing at least thirty days prior to the filling or refilling of each storage vessel for which an inspection is required by subparagraphs a and d of paragraph 1 of this subdivision to afford the department the opportunity to have an observer present. If the inspection required by subparagraph d of paragraph 1 of this subdivision is not planned and the owner or operator could not have known about the inspection thirty days in advance or refilling the tank, the owner or operator shall notify the department at least seven days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the department at least seven days prior to the refilling.

(2) After installing the control equipment required to meet subparagraph b of paragraph 1 of subdivision c (external floating roof), the owner or operator shall:

(a) Determine the gap areas and maximum gap widths, between the primary seal and the wall of the storage vessel and between the secondary seal and the wall of the storage vessel according to the following frequency:

[1] Measurements of gaps between the tank wall and the primary seal (seal gaps) shall be performed during the hydrostatic testing of the vessel or within sixty days of the initial fill with volatile organic liquids (VOL) and at least once every five years thereafter.

[2] Measurements of gaps between the tank wall and the secondary seal shall be performed within sixty days of the initial fill with volatile organic liquids (VOL) and at least once per year thereafter.

[3] If any source ceases to store volatile organic liquids (VOL) for a period of one year or more, subsequent introduction of volatile organic liquids (VOL) into the vessel shall be considered an initial fill for the purposes of items 1 and 2 of subparagraph a of paragraph 2 of this subdivision.

(b) Determine gap widths and areas in the primary and secondary seals individually by the following procedures:

[1] Measure seal gaps, if any, at one or more floating roof levels when the roof is floating off the roof leg supports.

[2] Measure seal gaps around the entire circumference of the tank in each place where a 0.32-cm diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the storage vessel and measure the circumferential distance of each such location.

[3] The total surface area of each gap described in item 2 of subparagraph b of paragraph 2 of this subdivision shall 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.

(c) Add the gap surface area of each gap location for the primary seal and the secondary seal individually and divide the sum for each seal by the nominal diameter of the tank and compare each ratio to the respective standards in subparagraph d of paragraph 2 of this subdivision.

(d) Make necessary repairs or empty the storage vessel within forty-five days of identification in any inspection for seals not meeting the requirements listed in items 1 and 2 of subparagraph d of paragraph 2 of this subdivision.

[1] The accumulated area of gaps between the tank wall and the mechanical shoe or liquid-mounted primary seal shall not exceed two hundred twelve centimeter squared per meter of tank diameter, and the width of any portion of any gap shall not exceed 3.81 centimeters.

[a] One end of the mechanical shoe is to extend into the stored liquid, and the other end is to

        extend a minimum vertical distance of sixty-one centimeters above the stored liquid surface.

    [b] There are to be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope.

[2] The secondary seal is to meet the following requirements:

    [a] The secondary seal is to be installed above the primary seal so that it completely covers the space between the roof edge and the tank wall except as provided in item 3 of subparagraph b of paragraph 3 of this subdivision.

    [b] The accumulated area of gaps between the tank wall and the secondary seal shall not exceed 21.2 centimeters squared per meter of tank diameter, and the width of any portion of any gap shall not exceed 1.27 centimeters.

    [c] There are to be no holes, tears, or other openings in the seal or seal fabric.

[3] If a failure that is detected during inspections required in subparagraph a of paragraph 2 of subdivision d cannot be repaired within forty-five days and if the vessel cannot be emptied within forty-five days, a thirty-day extension may be requested from the department in the inspection report required in subparagraph d of paragraph 2 of subdivision f. Such extension request must include a demonstration of unavailability of alternate storage capacity and a specification of a schedule that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

(e) Notify the department thirty days in advance of any gap measurements required by subparagraph a of paragraph 2 of this subdivision to afford the department the opportunity to have an observer present.

(f) Visually inspect the external floating roof, the primary seal, secondary seal, and fittings each time the vessel is emptied and degassed.

[1] If the external floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before filling or refilling the storage vessel with volatile organic liquids (VOL).

[2] For all the inspections required by subparagraph f of paragraph 2 of this subdivision, the owner or operator shall notify the department in writing at least thirty days prior to the filling or refilling of each storage vessel to afford the department the opportunity to inspect the storage vessel prior to refilling. If the inspection required by subparagraph f of paragraph 2 of this subdivision is not planned and the owner or operator could not have known about the inspection thirty days in advance of refilling the tank, the owner or operator shall notify the department at least seven days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the department at least seven days prior to the refilling.

(3) The owner or operator of each source that is equipped with a closed vent system and control device as required in subparagraph c of paragraph 1 or subparagraph b of paragraph 2 of subdivision c (other than a flare) is exempt from subsection 7 of section 33-15-12-01 of the general provisions and shall meet the following requirements.

(a) Submit for approval by the department as an attachment to the notification required by paragraph 1 of subdivision a of subsection 6 of section 33-15-12-01 or if the facility is exempt from paragraph 1 of subdivision a of subsection 6 of section 33-15-12-01, as an attachment to the notification required by paragraph 2 of subdivision a of subsection 6 of section 33-15-12-01 , an operating plan containing the information listed below.

[1] Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions. This documentation is to include a description of the gas steam which enters the control device, including flow and volatile organic compounds (VOC) content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If the control device or the closed vent capture system receives vapors, gases, or liquids other than fuels from source that are not designated sources under this subsection, the efficiency demonstration is to include consideration of all vapors, gases, and liquids received by the closed vent capture system and control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of eight hundred sixteen degrees Celsius is used to meet the ninety-five percent requirement, documentation that those conditions will exist is sufficient to meet the requirements of this paragraph.

[2] A description of the parameter or parameters to be monitored to ensure that the control device will be operated in conformance with its design and an explanation of the criteria used for selection of that parameter or parameters.

(b) Operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the department in accordance with subparagraph a of paragraph 3 of this subdivision, unless the plan was modified by the department during the review process. In this case, the modified plan applies.

(4) The owner or operator of each source that is equipped with a closed vent system and a flare to meet the requirements in subparagraph c of paragraph 1 or subparagraph b of paragraph 2 of subdivision c shall meet the requirements as specified in the general control device requirements of subdivisions e and f of subsection 14 of section 33-15-12-01.

e. Alternative means of emission limitation.

(1) If, in the department's and administrator's judgment, an alternative means of emission limitation will achieve a reduction in emissions at least equivalent to the reduction in emissions achieved by any requirement in subdivision c, the department and administrator will publish a notice permitting the use of the alternative means for purposes of compliance with that requirement.

(2) Any notice under paragraph 1 of this subdivision will be published only after notice and an opportunity for a hearing.

(3) Any person seeking permission under this subdivision shall submit to the department and administrator a written application including:

(a) An actual emissions test that uses a full-sized or scale-model storage vessel that accurately collects and measures all volatile organic compounds (VOC) emissions from a given control device and that accurately simulates wind and accounts for other emission variables such as temperature and barometric pressure.

(b) An engineering evaluation that the department determines is an accurate method of determining equivalence.

(4) The department may condition the permission on requirements that may be necessary to ensure operation and maintenance to achieve the same emissions reduction as specified in subdivision c.

f. Reporting and recordkeeping requirements. The owner or operator of each storage vessel as specified in paragraph 1 of subdivision c shall keep records and furnish reports as required by paragraphs 1, 2, and 3 of this subdivision depending upon the control equipment installed to meet the requirements of subdivision c. The owner or operator shall keep copies of all reports and records required by this subdivision, except for the record required by subparagraph a of paragraph 3, for at least two years. The record required by subparagraph a of paragraph 3 will be kept for the life of the control equipment.

(1) After installing control equipment in accordance with subparagraph a of paragraph 1 of subdivision c (fixed roof and internal floating roof), the owner or operator shall meet the following requirements:

(a) Furnish the department with a report that describes the control equipment and certifies that the control equipment meets the specifications of subparagraph a of paragraph 1 of subdivision c and subparagraph a of paragraph 1 of subdivision d. This report shall be an attachment to the notification required by paragraph 3 of subdivision a of subsection 6 of section 33-15-12-01.

(b) Keep a record of each inspection performed as required by subparagraphs a, b, c, and d of paragraph 1 of subdivision d. Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).

(c) If any of the conditions described in subparagraph b of paragraph 1 of subdivision d are detected during the annual visual inspection required by subparagraph b of paragraph 1 of subdivision d, a report shall be furnished to the department within thirty days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.

(d) After each inspection required by subparagraph c of paragraph 1 of subdivision d that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in item 2 of subparagraph c of paragraph 1 of subdivision d, a report shall be furnished to the department within thirty days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of subparagraph a of paragraph 1 of subdivision c or subparagraph c of paragraph 1 of subdivision d and list each repair made.

(2) After installing control equipment in accordance with subparagraph b of paragraph 1 of subdivision c (external floating roof), the owner or operator shall meet the following requirements:

(a) Furnish the department with a report that describes the control equipment and certifies that the control equipment meets the specifications of subparagraph b, ~~c, and d~~ of paragraph 1 of subdivision c and subparagraphs b, c, and d of paragraph 2 of subdivision d. This report shall be an attachment to the notification required by paragraph 3 of subdivision a of subsection 6 of section 33-15-12-01.

(b) Within sixty days of performing seal gap measurements required by subparagraph a of paragraph 2 of subdivision d, furnish the department with a report that contains:

[1] The date of the measurement.

[2] The raw data obtained in the measurement.

[3] The calculations described in subparagraphs b and c of paragraph 2 of subdivision d.

(c) Keep a record of each gap measurement performed as required by paragraph 2 of subdivision d. Each record shall identify the storage vessel in which the measurement was performed and shall contain:

[1] The date of measurement.

[2] The raw data obtained in the measurement.

[3] The calculations described in subparagraph b and c of paragraph 2 of subdivision d.

(d) After each seal gap measurement that detects gaps exceeding the limitations specified by subparagraph d of paragraph 2 of subdivision d, submit a report to the department within thirty days of the inspection. The report will identify the vessel and contain the information specified in subparagraph b of paragraph 2 of this subdivision and the date the vessel was emptied or the repairs made and date of repair.

(3) After installing control equipment in accordance with subparagraph c of paragraph 1 or subparagraph a of paragraph 2 of subdivision c (closed vent system and control device other than a flare), the owner or operator shall keep the following records:

(a) A copy of the operating plan.

(b) A record of the measured values of the parameters monitored in accordance with subparagraph b of paragraph 3 of subdivision d.

(4) After installing a closed vent system and flare to comply with subdivision c, the owner

or operator shall meet the following requirements:

(a) A report containing the measurements required by subsection 7 of section 33-15-12-01 shall be furnished to the department as required by paragraphs 1, 2, 3, 4, 5, and 6 of subdivision f of subsection 14 of section 33-15-12-01. This report shall be submitted within six months of the initial start up date.

(b) Records shall be kept of all periods of operation during which the flare pilot flame is absent.

(c) Semiannual reports of all periods recorded under subparagraph b of paragraph 4 of subdivision f in which the pilot flame was absent shall be furnished to the department.

g. Monitoring of operations.

(1) The owner or operator shall keep copies of all records required by this subdivision, except for the record required by paragraph 2 of this subdivision, for at least two years. The record required by paragraph 2 of this subdivision will be kept for the life of the source.

(2) The owner or operator of each storage vessel as specified in paragraph 1 of subdivision a shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. Each storage vessel with a design capacity less than seventy-five cubic meters is subject to no provision of this subsection other than those required by this paragraph.

(3) Except as provided in paragraphs 6 and 7 of this subdivision, the owner or operator of each storage vessel either with a design capacity greater than or equal to one hundred fifty-one cubic meters storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kilopascals or with a design capacity greater than or equal to seventy-five cubic meters but less than one hundred fifty-one cubic meters storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kilopascals shall maintain a

record of the volatile organic liquids (VOL) stored, the period of storage, and the maximum true vapor pressure of that volatile organic liquids (VOL) during the respective storage period.

(4) Except as provided in paragraph 7 of this subdivision, the owner or operator of each storage vessel either with a design capacity greater than or equal to one hundred fifty-one cubic meters storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kilopascals or with a design capacity greater than or equal to seventy-five cubic meters but less than one hundred fifty-one cubic meters storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kilopascals shall notify the department within thirty days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range.

(5) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below.

(a) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the national weather service.

(b) For crude oil or refined petroleum products the vapor pressure may be obtained by the following:

[1] Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in American petroleum institute bulletin 2517 unless the department specifically requests that the liquid be sampled, the actual storage temperature

determined, and the Reid vapor pressure determined from the samples.

[2] The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kilopascals or with physical properties that preclude determination by the recommended method to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kilopascals.

(c) For other liquids, the vapor pressure:

[1] May be obtained from standard reference texts, or

[2] Determined by A.S.T.M. method D2879-93; or

[3] Measured by an appropriate method approved by the department and administrator; or

[4] Calculated by an appropriate method approved by the department and administrator.

(6) The owner or operator of each vessel storing a waste mixture of indeterminate or variable composition shall be subject to the following requirements:

(a) Prior to the initial filling of the vessel, the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored will be determined using the methods described in paragraph 5 of this subdivision.

(b) For vessels in which the vapor pressure of the anticipated liquid composition is above the cutoff for monitoring but below the cutoff for control as defined in paragraph 1 of subdivision c, an initial physical test of the vapor pressure is required; and a physical test at least once every six months thereafter is required as determined by the following methods:

[1] A.S.T.M. method D2879-83;

[2] A.S.T.M. method D323-82;

[3] As measured by an appropriate method as approved by the department and administrator.

(7) The owner or operator of each vessel equipped with a closed vent system and control device meeting the specifications of subdivision c is exempt from the requirements of paragraphs 3 and 4 of this subdivision.

12. **Standards of performance for incinerators.**

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to each incinerator of more than forty-five metric tons [50 tons] per day charging rate, which is the affected facility. Any facility that commences construction or modification after August 17, 1971, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Day" means twenty-four hours.

(2) "Incinerator" means any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter.

(3) "Solid waste" means refuse, more than fifty percent of which is municipal-type waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustibles, and noncombustible materials such as glass and rock.

c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 or section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 gram per dry cubic meter at standard conditions [0.08 gr/dscf] corrected to twelve percent carbon dioxide.

d. Monitoring of operations. The owner or operator of any incinerator subject to the provisions of this subsection shall record the daily charging rates and hours of operation.

e. Test methods and procedures.

~~(1) The reference methods in appendix A to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:~~

~~(a) Method 5 for the concentration of particulate matter and the associated moisture content.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for velocity and volumetric flow rate.~~

~~(d) Method 3 for gas analysis and calculation of excess air, using the integrated sample technique.~~

~~(2) For method 5, the sampling time for each run must be at least sixty minutes and the minimum sample volume must be 0.85 dry cubic meter at standard conditions (30.0 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under subparagraphs a through e or the procedure under subparagraphs a, b, and f as follows:~~

~~(a) The outlet sampling site must be the same as for the particulate matter measurement. The inlet site must be selected according to method 1, or as specified by the department.~~

~~(b) Randomly select nine sampling points within the cross section at both the~~

~~inlet and outlet sampling sites. Use the first set of three for the first run, the second set for the second run, and the third set for the third run.~~

~~(c) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide an integrated gas sample according to method 3, traversing the three sample points and sampling at each point for equal increments of time. Runs must be conducted at both inlet and outlet sampling sites.~~

~~(d) Measure the volumetric flow rate at the inlet during each particulate matter run according to method 2, using the full number of traverse points. For the inlet make two full velocity traverses approximately one hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run (method 5).~~

~~(e) Calculate the adjusted carbon dioxide percentage using the following equation:~~

~~$(\% CO_2)adj = (\% CO_2)_{di} (Q_{di}/Q_{do})$~~

~~where:~~

~~$(\% CO_2)adj$ = adjusted carbon dioxide percentage which removes the effect of carbon dioxide absorption and dilution air.~~

~~$(\% CO_2)_{di}$ = percentage of carbon dioxide measured before the scrubber, dry basis.~~

~~Q_{di} = volumetric flow rate before the scrubber, average of two runs, dscf/min (using method 2).~~

~~Q_{do} = volumetric flow rate after the scrubber, dscf/min (using methods 2 and 5).~~

~~(f) Alternatively, the following procedures may be substituted for the procedures under subparagraphs c, d, and e.~~

(1) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen, and nitrogen an integrated gas sample according to method 3, traversing the three sample points and sampling for equal increments of time at each point. Conduct the runs at both the inlet and outlet sampling sites.

(2) After completing the analysis of the gas sample, calculate the percentage of excess air (% EA) for both the inlet and outlet sampling sites using equation 3-1 in appendix A to this chapter.

(3) Calculate the adjusted carbon dioxide percentage using the following equation:

$$(\% CO_2)adj = (\% CO_2)_{di} \frac{100+(\% EA)_i}{100+(\% EA)_o}$$

where:

$(\% CO_2)adj$ = adjusted outlet carbon dioxide percentage.

$(\% CO_2)_{di}$ = percentage of carbon dioxide measured before the scrubber, dry basis.

$(\% EA)_i$ = percentage of excess air at the inlet.

$(\% EA)_o$ = percentage of excess air at the outlet.

(4) Particulate matter emissions, expressed in grams per dry cubic meter at standard conditions, must be corrected to twelve percent carbon dioxide by using the following formula:

$$c_{12} = \frac{12c}{\% CO_2}$$

where:

c_{12} = concentration of particulate

~~matter corrected to twelve percent carbon dioxide.~~

~~c = concentration of particulate matter as measured by method 5.~~

~~% CO_2 = percentage of carbon dioxide as measured by method 3, or when applicable, the adjusted outlet carbon dioxide percentage as determined by this paragraph.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the particulate matter standard in subdivision c as follows:

(a) The emission rate (C_{12}) of particulate matter, corrected to twelve percent carbon dioxide, must be computed for each run using the following equation:

$$C_{12} = C_s \ (12/\%CO_2)$$

where:

C_{12} = concentration of particulate matter, corrected to 12 percent CO_2, g/dscm (gr/dscf).

C_s = concentration of particulate matter, g/dscm (gr/dscf).

$\%CO_2$ = CO_2 concentration, percent dry basis.

(b) Method 5 must be used to determine the particulate matter concentration (C_s). The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf].

(c) The emission rate correction factor, integrated or grab sampling and analysis procedure of method 3 must be used to determine carbon dioxide concentration ($\%CO_2$).

[1] The carbon dioxide sample must be obtained simultaneously with, and at the same traverse points as, the particulate run. If the particulate run has more than twelve traverse points, the carbon dioxide traverse points may be reduced to twelve if method 1 is used to locate the twelve carbon dioxide traverse points. If individual carbon dioxide samples are taken at each traverse point, the carbon dioxide concentration ($\%CO_2$) used in the correction equation must be the arithmetic mean of all the individual carbon dioxide sample concentrations at each traverse point.

[2] If sampling is conducted after a wet scrubber, an "adjusted" carbon dioxide concentration [$(\%CO_2)_{adj}$], which accounts for the effects of carbon dioxide absorption and dilution air, may be used instead of the carbon dioxide concentration determined in this paragraph. The adjusted carbon dioxide concentration must be determined by either of the procedures in paragraph 3 of this subdivision.

(3) The owner or operator may use either of the following procedures to determine the adjusted carbon dioxide concentration.

(a) The volumetric flow rates at the inlet and outlet of the wet scrubber and the inlet carbon dioxide concentration may be used to determine the adjusted carbon dioxide concentration [$(\%CO_2)_{adj}$] using the following equation:

$$(\%CO_2)_{adj} = (\%CO_2)_{di} \ (Q_{di}/Q_{do})$$

where:

$(\%CO_2)_{adj}$ = adjusted outlet CO_2

concentration, percent dry basis.

$(\%CO_2)_{di}$ = CO_2 concentration measured before the scrubber, percent dry basis.

Q_{di} = volumetric flow rate of effluent gas before the wet scrubber, dscm/min (dscf/min).

Q_{do} = volumetric flow rate of effluent gas after the wet scrubber, dscm/min (dscf/min).

[1] At the outlet, method 5 is used to determine the volumetric flow rate (Q_{do}) of the effluent gas.

[2] At the inlet, method 2 is used to determine the volumetric flow rate (Q_{di}) of the effluent gas as follows: Two full velocity traverses are conducted, one immediately before and one immediately after each particulate run conducted at the outlet, and the results are averaged.

[3] At the inlet, the emission rate correction factor, integrated sampling and analysis procedure of method 3 is used to determine the carbon dioxide concentration [$(\%CO_2)_{di}$] as follows: At least nine sampling points are selected randomly from the velocity traverse points and are divided randomly into three sets, equal in number of points; the first set of three or more points is used for the first run, the second set for the second run, and the third set for the third run. The carbon dioxide sample is taken simultaneously with each particulate run being conducted at the outlet, by traversing the three sampling points (or more) and sampling at each point for equal increments of time.

(b) Excess air measurements may be used to determine the adjusted carbon dioxide concentration [$(\%CO_2)_{adj}$] using the following equation:

$$(\%CO_2)_{adj} = (\%CO_2)_{di}[(100+\%EA_i)/(100+\%EA_o)]$$

where:

$(\%CO_2)_{adj}$ = adjusted outlet CO_2 concentration, percent dry basis.

$(\%CO_2)_{di}$ = CO_2 concentration at the inlet of the wet scrubber, percent dry basis.

$\%EA_i$ = excess air at the inlet of the scrubber, percent.

$\%EA_o$ = excess air at the outlet of the scrubber, percent.

[1] A gas sample is collected as in item 3 of subparagraph a of paragraph 3 of this subdivision and the gas samples at both the inlet and outlet locations are analyzed for carbon dioxide, oxygen, and nitrates.

[2] Equation 3-1 of method 3 is used to compute the percentages of excess air at the inlet and outlet of the wet scrubber.

13. **Standards of performance for sewage treatment plants.**

a. Applicability and designation of affected facility. The affected facility is each incinerator that combusts wastes containing more than ten percent sewage sludge (dry basis) produced by municipal sewage treatment plants, or each incinerator that charges more than one thousand kilograms [2205 pounds] per day municipal sewage sludge (dry basis). Any facility that commences construction after June 11, 1973, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator of any sewage sludge incinerator subject to the provisions of this subsection may discharge or cause the discharge into the atmosphere of:

(1) Particulate matter at a rate in excess of sixty-five-hundredths grams per kilogram dry sludge input [1.30 pounds per ton dry sludge input].

(2) Any gases which exhibit twenty percent opacity or greater.

d. Monitoring of operations.

(1) The owner or operator of any sludge incinerator subject to the provisions of this subsection shall:

~~(1)~~ (a) Install, calibrate, maintain, and operate a flow measuring device which can be used to determine either the mass or volume of sludge charged to the incinerator. The flow measuring device shall be certified by the manufacturer to have an accuracy of ±five percent over its operating range. Except as provided in paragraph 4 of this subdivision, the flow measuring device shall be operated continuously and data recorded during all periods of operation of the incinerator.

~~(2)~~ (b) Provide access to the sludge charged so that a well-mixed representative grab sample of the sludge can be obtained.

~~(3)~~ (c) Install, calibrate, maintain, and operate a weighing device for determining the mass of any municipal solid waste charged to the incinerator when sewage sludge and municipal solid waste are incinerated together. The weighing device shall have an accuracy of ±five percent over its operating range.

(2) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subsection shall comply with the requirements of paragraph 1 of this subdivision and;

(a) For incinerators equipped with a wet scrubbing device, install, calibrate, maintain, and operate a monitoring device that continuously measures and records the pressure drop of the gas flow through the wet scrubbing device. Where a combination of wet scrubbers is used in series, the pressure drop of the gas flow through the combined system must be continuously monitored. The device used to monitor scrubber pressure drop must be certified by the manufacturer to be accurate within plus or minus two hundred fifty pascals (±1 inch water gauge) and must be calibrated on an annual basis in accordance with the manufacturer's instructions;

(b) Install, calibrate, maintain, and operate a monitoring device that continuously measures and records the oxygen content of the incinerator exhaust gas. The oxygen monitor must be located upstream of any rabble shaft cooling air inlet into the incinerator exhaust gas stream, fan, ambient air recirculation damper, or any other source of dilution air. The oxygen monitoring device must be certified by the manufacturer to have a relative accuracy of plus or minus five percent over its operating range and must be calibrated according to methods prescribed by the manufacturer at least once each twenty-four-hour operating period.

(c) Install, calibrate, maintain, and operate temperature measuring devices at every hearth in multiple hearth furnaces; in the bed and outlet of fluidized bed incinerators; and in the drying, combustion, and cooling zones of electric incinerators. For multiple hearth furnaces, a minimum of one thermocouple must be installed in each hearth in the cooling and drying zones, and a minimum of two thermocouples must be installed in each hearth in the combustion zone. For electric incinerators, a minimum of one thermocouple must be installed in the drying zone and one in the cooling zone, and a minimum of two thermocouples must be installed in the combustion zone. Each temperature measuring device must be certified by the manufacturer to have an accuracy of plus or minus five percent over its operating range. Except as provided in paragraph d of this subdivision, the temperature monitoring device must be operated continuously and data recorded during all periods of operation of the incinerator.

(d) Install, calibrate, maintain, and operate a device for measuring the fuel flow to the incinerator. The flow measuring device must be certified by the manufacturer to have an accuracy of plus or minus five percent over its operating range. Except as provided in paragraph 4 of this subdivision, the fuel flow measuring device must be operated continuously and data recorded during all periods of operation of the incinerator.

(e) Except as provided in paragraph 4 of this subdivision, collect and analyze a grab sample of the sludge fed to the incinerator once per day. The dry sludge content and the volatile solids content of the sample must be determined in accordance with the method specified under subparagraph e of paragraph 2 of subdivision c, except that the determination of volatile solids, step (3)(b) of the method, may not be deleted.

(3) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subsection shall retain the following information and make it available for inspection by the department for a minimum of two years:

(a) For incinerators equipped with a wet scrubbing device, a record of the measured pressure drop of the gas flow through the wet scrubbing device, as required by subparagraph a of paragraph 2 of this subdivision.

(b) A record of the measured oxygen content of the incinerator exhaust gas, as required by subparagraph b of paragraph 2 of this subdivision.

(c) A record of the rate of sludge charged to the incinerator, the measured temperatures of the incinerator, the fuel flow to the incinerator, and the total solids and volatile solids content of the sludge charged to the incinerator, as required by subparagraph a of paragraph 1 and by subparagraphs c, d, and e of paragraph 2 of this subdivision.

(4) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subsection from which the particulate matter emission rate measured during the performance test required under paragraph 4 of subdivision e is less than or equal to 0.38 grams per kilogram of dry sludge input [0.75 lb/ton] shall comply with the requirements in paragraphs 1, 2, and 3 of this subdivision during all periods of this incinerator following the performance test except that:

(a) Continuous operation of the monitoring devices and data recorders in subparagraph a of paragraph 1 and subparagraphs c and d of paragraph 2 of this subdivision is not required.

(b) Daily sampling and analysis of sludge feed in subparagraph e of paragraph 2 of this subdivision is not required.

(c) Recordkeeping specified in subparagraph c of paragraph 3 of this subdivision is not required.

(5) The owner or operator of any sludge incinerator other than a multiple hearth, fluidized bed, or electric incinerator or any sludge incinerator equipped with a control device other than a wet scrubber shall submit to the administrator for approval a plan for monitoring and recording incinerator and control device operation parameters. The plan must be submitted to the administrator.

(a) No later than ninety days after October 6, 1988, for sources which have provided notification of commencement of construction prior to October 6, 1988.

(b) No later than ninety days after the notification of commencement of construction, for sources which provide notification of commencement of construction on or after October 6, 1988.

(c) At least ninety days prior to the date on which the new control device becomes operative, for sources switching to a control device other than a wet scrubber.

e. Test methods and procedures.

~~(1) The reference methods appended to this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standards prescribed in subdivision c of this subsection as follows:~~

~~(a) Method 5 for concentration of particulate matter and associated moisture content.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for volumetric flow rate.~~

~~(d) Method 3 for gas analysis.~~

~~(2) For method 5, the sampling time for each run must be at least sixty minutes and the sampling rate must be at least fifteen-thousandths dry cubic meter at standard conditions per minute (0.53 dscf per minute), except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3) Dry sludge charging rate must be determined as follows:~~

~~(a) Determine the mass or volume of sludge charged to the incinerator during each run using a flow measuring device meeting the requirements of paragraph 1 of subdivision d. If total input during a run is measured by a flow measuring device, such readings must be used. Otherwise, record the flow measuring device readings at five-minute intervals during a run. Determine the quantity charged during each interval by averaging the flow rates at the beginning and end of the interval and then multiplying the average for each interval by the time for each interval. Then add the quantity for each interval to determine the total quantity charged during the entire run, sludge mass or sludge volume.~~

~~(b)~~ ~~Collect samples of the sludge charged to the incinerator in nonporous collecting jars at the beginning of each run and at approximately one-hour intervals thereafter until the test ends, and determine for each sample the dry sludge content (total solids residue) in accordance with "224 G. Method for Solid and Semisolid Samples," Standard Methods for the Examination of Water and Wastewater, thirteenth edition, American Public Health Association, Incorporated, New York, New York, 1971, pages 539-41, except that:~~

~~(1)~~1. ~~Evaporating dishes must be ignited to at least one hundred three degrees Celsius rather than the five hundred fifty degrees Celsius (1022 degrees Fahrenheit) specified in step 3(a)(1).~~

~~(2)~~2. ~~Determination of volatile residue, step 3(b) may be deleted.~~

~~(3)~~3. ~~The quantity of dry sludge per unit sludge charged must be determined in terms of either R_{dv} (metric units: mg dry sludge/liter sludge charged or English units: lb/ft^3) or R_{dm} (metric units: mg dry sludge/mg sludge charged or English units: lb/lb).~~

~~(c)~~ ~~Determine the quantity of dry sludge per unit sludge charged in terms of either R_{dv} or R_{dm}.~~

~~(1)~~ ~~If the volume of sludge charged is used:~~

~~$S_d = (60 \times 10^{-3}) \frac{R_{dv} S_v}{T}$ (metric units)~~

~~or~~

~~$S_d = (8.021) \frac{R_{dv} S_v}{T}$ (English units)~~

~~where:~~

~~S_d = average dry sludge charging rate during the run, kg/hr (English units: lb/hr)~~.

~~R_{dv} = average quantity of dry sludge per unit volume of sludge charged to the incinerator, mg/l (English units: lb/ft^3).~~

~~S_v = sludge charged to the incinerator during the run, m^3 (English units: gal).~~

~~θ = duration of run, min (English units: min).~~

~~60×10^{-3} = metric units conversion factor, l-kg-min/m^3-mg-hr.~~

~~0.021 = English units conversion factor, ft^3-min/gal-hr.~~

~~(2) If the mass of sludge charged is used:~~

~~$S_d = (60) \frac{R_{dm} S_m}{\theta}$ (metric or English units)~~

~~where:~~

~~S_d = average dry sludge charging rate during the run, kg/hr (English units: lb/hr).~~

~~R_{dm} = average ratio of quantity of dry sludge to quantity of sludge charged to the incinerator mg/mg (English units: lb/lb).~~

~~S_m = sludge charged during the run, kg (English units: lb).~~

~~θ = duration of run, min (metric or English units).~~

~~60 = conversion factor, min/hr (metric or English units).~~

~~(4) Particulate emission rate must be determined by:~~

~~$c_{aw} = c_s Q_s$ (metric or English units)~~

~~where:~~

~~C_{aw} = particulate matter mass emissions, mg/hr (English units: lb/hr).~~

~~C_s = particulate matter concentration, mg/m^3 (English units: lb/dscf).~~

~~Q_s = volumetric stack gas flow rate, dscm/hr (English units: dscf/hr). Q_s and C_s, shall be determined using methods 2 and 5, respectively.~~

~~(5) Compliance with subdivision c must be determined as follows:~~

~~$$C_{ds} = (10^{-3}) \frac{C_{aw}}{S_d} \text{ (metric units)}$$~~

~~or~~

~~$$C_{ds} = (2000) \frac{C_{aw}}{S_d} \text{ (English units)}$$~~

~~where:~~

~~C_{ds} = particulate emission discharge, g/kg dry sludge (English units: lb/ton dry sludge).~~

~~10^{-3} = metric conversion factor, g/mg.~~

~~2000 = English conversion factor, lb/ton.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this section, except as provided for in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the particulate matter emission standards in subdivision c as follows:

(a) The emission rate (E) of particulate matter for each run shall be computed using the following equation:

$$E = K (C_s Q_{sd})/S$$

where:

E = emission rate of particulate matter, g/kg (lb/ton) of dry sludge input.

C_s = concentration of particulate matter, g/dscm (g/dscf).

Q_{sd} = volumetric flow rate of effluent gas, dscm/hr (dscf/hr).

S = charging rate of dry sludge during the run, kg/hr (lb/hr).

K = conversion factor, 1.0 g/g [4.409 $lb^2/(g\text{-}ton)$].

(b) Method 5 must be used to determine the particulate matter concentration (C_s) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run must be at least sixty minutes and 0.90 dry cubic meter at standard conditions [31.8 dscf].

(c) The dry sludge charging rate (S) for each run must be computed using either of the following equations:

$$S = K_m\ S_m\ R_{dm}/\theta$$

$$S = K_v\ S_v\ R_{dv}/\theta$$

where:

S = charging rate of dry sludge, kg/hr (lb/hr).

S_m = total mass of sludge charged, kg (lb).

R_{dm} = average mass of dry sludge per unit mass of sludge charged, mg/mg (lb/lb).

θ = duration of run, min.

K_m = conversion factor, 60 min/hr.

S_v = total volume of sludge charged, m^3 (gal).

R_{dv} = average mass of dry sludge per unit volume of sludge charged, mg/liter (lb/ft^3).

K_v = conversion factor, 60×10^{-3} (liter-kg-min)/(m^3-mg-hr) [8.021 (ft^3-min)/(gal-hr)].

(d) The flow measuring device of subparagraph a of paragraph 1 of subdivision d must be used to determine the total mass (S_m) or volume (S_v) of sludge charged to the incinerator during each run. If the flow measuring device is on a time rate basis, readings must be taken and recorded at five-minute intervals during the run and the total charge of sludge must be computed using the following equations, as applicable:

$$S_m = \sum_{i=1}^{n} Q_{mi}\,\theta_i$$

$$S_v = \sum_{i=1}^{n} Q_{vi}\,\theta_i$$

where:

Q_{mi} = average mass flow rate calculated by averaging the flow rates at the beginning and end of each interval "i", kg/min (lb/min).

Q_{vi} = average volume flow rate calculated by averaging the flow rates at the beginning and end of each interval "i", m^3/min (gal/min).

θ_i = duration of interval "i", min.

(e) Samples of the sludge charged to the incinerator must be collected in nonporous jars at the beginning of each run and at approximately one-hour intervals thereafter until the test ends, and "209 F Method for Solid and Semisolid Samples" must be used to determine dry sludge content of each sample (total solids residue), except that:

[1] Evaporating dishes must be ignited to at least one hundred three degrees Celsius rather than the five hundred fifty degrees Celsius specified in step 3(a)(1).

[2] Determination of volatile residue, step 3(b) may be deleted.

[3] The quantity of dry sludge per unit sludge charged must be determined in terms of mg/liter (lb/ft^3) or mg/mg (lb/lb).

[4] The average dry sludge content must be the arithmetic average of all the samples taken during the run.

(f) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(3) The owner or operator of any sludge incinerator subject to the provisions of this subsection shall conduct a performance test during which the monitoring and recording devices under subparagraph a of paragraph 1 of subdivision d and subparagraphs a, b, c, and d of paragraph 2 of subdivision d are installed and operating and for which the sampling and analysis procedures required under subparagraph e of paragraph 2 of subdivision d are performed. The owner or operator shall provide the department at least thirty days' prior notice of the performance test to afford the department the opportunity to have an observer present.

(a) For incinerators that commenced construction or modification on or before April 18, 1986, the performance test must be conducted within three hundred sixty days of June 1, 1990, unless the monitoring and recording devices required under subparagraph a of paragraph 1 of subdivision d and subparagraphs a, b, c, and d of paragraph 2 of subdivision d were installed and operating and the sampling and analysis procedures required under subparagraph e of paragraph 2 of subdivision d were performed during the most recent performance test and a record of the measurements taken during the performance test is available.

(b) For incinerators that commence construction or modification after April 18, 1986, the date of the performance test must be determined by the requirements in subsection 7 of section 33-15-12-01.

(c) For the initial performance test required by paragraph 4 of this subdivision, the three samples collected by test method 5 must be analyzed first for particulate mass and then in one of the following two ways:

[1] Two samples must be analyzed by neutron activation for arsenic, cadmium, chromium, copper, nickel, selenium, and zinc; and one sample must be analyzed by atomic absorption for beryllium and lead. The sample analyzed for beryllium and lead must be analyzed according to methods 104 and 12, respectively.

[2] Three samples must be analyzed by atomic absorption for arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, and zinc. The samples must be analyzed for arsenic, beryllium, and lead according to methods 108, 104, and 12, respectively. The samples must be analyzed for cadmium, chromium, copper, nickel, selenium, and zinc according to standard analytical procedures as recommended by atomic absorption equipment manufacturers.

(d) During the initial performance test required by paragraph 4 of this subdivision, sludge samples must be collected for the purpose of determining the metals content of the sludge. Samples must be collected from the sludge charged to the incinerator at the beginning of each run and at approximately thirty-minute intervals thereafter until the test run ends. The sludge samples collected during each test run must be combined into a single composite sample. During the performance test, three composite samples must be generated. The composite samples must be analyzed in one of the following two ways:

[1] The composite samples must be analyzed for arsenic, cadmium, chromium, copper, nickel, selenium, and zinc by neutron activation procedures, and for beryllium and lead by atomic absorption according to methods 104 and 12, respectively.

[2] The composite samples must be analyzed by atomic absorption for arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, and zinc. The samples must be analyzed for arsenic, beryllium, and lead according to methods 108, 104, and 12, respectively. The samples must be analyzed for cadmium, chromium, copper, nickel, selenium, and zinc according to standard analytical procedures as recommended by atomic absorption equipment manufacturers.

(e) The requirements of subparagraphs c and d of paragraph 4 of this subdivision apply only during the first performance test required pursuant to this section.

f. Reporting.

(1) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subsection shall submit to the department semi-annually a report in writing which contains the following:

(a) A record of average scrubber pressure drop measurements for each period of fifteen minutes duration or more during which the pressure drop of the scrubber was less than, by a percentage specified in this subparagraph, the average scrubber pressure drop measured during the most recent performance test. The percent reduction in scrubber pressure drop for which a report is required must be determined as follows:

[1] For incinerators that achieved an average particulate matter emission

rate of 0.38 kilogram per megagram [0.75 lb/ton] dry sludge input or less during the most recent performance test, a scrubber pressure drop reduction of more than thirty percent from the average scrubber pressure drop recorded during the most recent performance test must be reported.

[2] For incinerators that achieved an average particulate matter emission rate of greater than 0.38 kilogram per megagram [0.75 lb/ton] dry sludge input during the most recent performance test, a percent reduction in pressure drop greater than that calculated according to the following equation must be reported:

$$P = -111E + 72.15$$

Where: P = Percent reduction in pressure drop, and

E = Average particulate matter emissions (kg/megagram)

(b) A record of average oxygen content in the incinerator exhaust gas for each period of one-hour duration or more that the oxygen content of the incinerator exhaust gas exceeds the average oxygen content measured during the most recent performance test by more than three percent.

(2) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator from which the average particulate matter emission rate measured during the performance test required under paragraph 4 of subdivision c exceeds 0.38 kilogram per megagram of dry sludge input [0.75 lb/ton of dry sludge input] shall include in the report for each calendar day that a decrease in scrubber pressure drop or increase in oxygen content of exhaust gas is reported a record of the following:

(a) Scrubber pressure drop averaged over each one-hour incinerator operating period.

(b) Oxygen content in the incinerator exhaust averaged over each one-hour incinerator operating period.

(c) Temperatures of every hearth in multiple hearth incinerators; of the bed and outlet of fluidized bed incinerators; and of the drying, combustion, and cooling zones of electric incinerators averaged over each one-hour incinerator operating period.

(d) Rate of sludge charged to the incinerator averaged over each one-hour incinerator operating period.

(e) Incinerator fuel use average over each eight-hour incinerator operating period.

(f) Moisture and volatile solids content of the daily grab sample of sludge charged to the incinerator.

(3) The owner or operator of any sludge incinerator other than a multiple hearth, fluidized bed, or electric incinerator or any sludge incinerator equipped with a control device other than a wet scrubber shall include in the semiannual report a record of control device operation measurements, as specified in the plan approved under paragraph 5 of subdivision d.

14. Standards of performance for the phosphate fertilizer industry - Wet-process phosphoric acid plants.

a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each wet-process phosphoric acid plant having a design capacity of more than fifteen tons [13.60 metric tons] of equivalent P_2O_5 feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of: reactors, filters, evaporators, and hot wells. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

(2) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.

(3) "Wet-process phosphoric acid plant" means any facility manufacturing phosphoric acid by reacting phosphate rock and acid.

c. Standard for fluorides. On and after the date of which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of ten grams per metric ton of equivalent P_2O_5 feed [0.020 lb/ton].

d. Monitoring of operations.

(1) The owner or operator of any wet-process phosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of ±five percent over its operating range.

(2) The owner or operator of any wet-process phosphoric acid plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a monitoring device for measuring mass flow rate which meets the requirements of paragraph 1 and then by proceeding according to ~~subparagraph b of paragraph 4~~ subparagraph c of paragraph 2 of subdivision e.

(3) The owner or operator of any wet-process phosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of ±five percent over its operating range.

e. Test methods and procedures.

~~(1) Reference methods in appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:~~

~~(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for velocity and volumetric flow rate.~~

~~(d) Method 3 for gas analysis.~~

~~(2) For method 13A or 13B, the sampling time for each run must be at least sixty minutes and the minimum sample volume must be eighty-five-hundredths dry cubic meter at standard conditions (30 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3) The air pollution control system for the affected facility must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.~~

~~(4) Equivalent P_2O_5 feed must be determined as follows:~~

~~(a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.~~

~~(b) Calculate the equivalent P_2O_5 feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. method 9 is published in the Official Methods of Analysis of the~~

~~Association of Official Analytical Chemists, eleventh edition, 1970, pages 11-12. Other methods may be approved by the department.~~

~~(5) For each run, emissions expressed in grams per metric ton of equivalent P_2O_5 feed must be determined using the following equation:~~

$$\cancel{E = \frac{(C_s Q_s) \quad 10^{-3}}{M_{P_2O_5}}}$$

~~where:~~

~~E = emissions of total fluorides in grams per metric ton of equivalent P_2O_5 feed.~~

~~C_s = concentration of total fluorides in milligrams per dscm as determined by method 13A or 13B.~~

~~Q_s = volumetric flow rate at the effluent gas stream in dscm per hour as determined by method 2.~~

~~10^{-3} = conversion factor for milligrams to grams.~~

~~$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by paragraph 4.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the total fluorides standard in subdivision b of this subsection as follows:

(a) The emission rate (E) of total fluorides must be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si} \; Q_{sdi}\right)/(P \; K)$$

where:

E = emission rate of total fluorides, g/metric ton (lb/ton) of equivalent P_2O_5 feed.

C_{si} = concentration of total fluorides from emission point "i", mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr).

N = number of emission points associated with the affected facility.

P = equivalent P_2O_5 feed rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 mg/g [453,600 mg/lb].

(b) Method 13A or 13B must be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf].

(c) The equivalent P_2O_5 feed rate (P) must be computed for each run using the following equation:

$P = M_p R_p$

where:

M_p = total mass flow rate of phosphorus-bearing feed, metric ton/hr (ton/hr).

R_p = P_2O_5 content, decimal fraction.

[1] The accountability system of paragraph 1 of subdivision d of this subsection shall be used to determine the mass flow rate (M_p) of the phosphorus-bearing feed.

[2] The Association of Official Analytical Chemists (AOAC) method 9 shall be used to determine the P_2O_5 content (R_p) of the feed.

15. **Standards of performance for the phosphate fertilizer industry - Superphosphoric acid plants.**

a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each superphosphoric acid plant having a design capacity of mo than fifteen tons [13.60 metric tons] of equivalent P_2O_5 fee per calendar year. For the purpose of this subsection, the affected facility includes any combination of evaporators, hot wells, acid sumps, and cooling tanks. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorous pentoxide, fed to the process.

(2) "Superphosphoric acid plant" means any facility which concentrates wet-process phosphoric acid to sixty-six percent or greater phosphorous pentoxide content by weight for eventual consumption as a fertilizer.

(3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.

c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of five grams per metric ton of equivalent P_2O_5 feed [0.010 pound per ton].

d. Monitoring of operations.

(1) The owner or operator of any superphosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of ±five percent over its operating range.

(2) The owner or operator of any superphosphoric acid plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph 1 and then by proceeding according to subparagraph ~~b~~c of paragraph ~~4~~2 of subdivision e.

(3) The owner or operator of any superphosphoric acid plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of ±five percent over its operating range.

e. Test methods and procedures.

~~(1) Reference methods in appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:~~

~~(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for velocity and volumetric flow rate.~~

~~(d) Method 3 for gas analysis.~~

~~(2) For method 13A or 13B, the sampling time for each run must be at least sixty minutes and the minimum sample volume must be at least~~

~~eighty-five-hundredths dry cubic meter at standard conditions (30 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors may be approved by the department.~~

~~(3)~~ ~~The air pollution control system for the affected facility must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.~~

~~(4)~~ ~~Equivalent~~ $\cancel{P_2O_5}$ ~~feed must be determined as follows:~~

~~(a)~~ ~~Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.~~

~~(b)~~ ~~Calculate the equivalent~~ $\cancel{P_2O_5}$ ~~feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, eleventh edition, 1970, pages 11-12. Other methods may be approved by the department.~~

~~(5)~~ ~~For each run, emissions expressed in grams per metric ton of equivalent~~ $\cancel{P_2O_5}$ ~~feed, must be determined using the following equation:~~

$$\cancel{E = \frac{(C_s Q_s)\ 10^{-3}}{M_{P_2O_5}}}$$

~~where:~~

~~E = emissions of total fluorides in grams per metric ton of equivalent~~ $\cancel{P_2O_5}$ ~~feed;~~

~~C_s = concentration of total fluorides in milligrams per dscm as determined by method 13A or 13B.~~

~~Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as~~

~~determined by method 2.~~

~~10^{-3} = conversion factor for milligrams to grams.~~

~~$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by this subsection.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the total fluorides standard in subdivision c of this subsection as follows:

(a) The emission rate (E) of total fluorides must be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si}\, Q_{sdi}\right)/(P\ K)$$

where:

E = emission rate of total fluorides, g/metric ton (lb/ton) of equivalent P_2O_5 feed.

C_{si} = concentration of total fluorides from emission point "i", mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr).

N = number of emission points associated with the affected facility.

P = equivalent P_2O_5 feed rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 mg/g [453,600 mg/lb].

(b) Method 13A or 13B must be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf].

(c) The equivalent P_2O_5 feed rate (P) must be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p = total mass flow rate of phosphorus-bearing feed, metric ton/hr (ton/hr).

R_p = P_2O_5 content, decimal fraction.

[1] The accountability system of paragraph 1 of subdivision d of this subsection must be used to determine the mass flow rate (M_p) of the phosphorus-bearing feed.

[2] The Association of Official Analytical Chemists (AOAC) method 9 must be used to determine the P_2O_5 content (R_p) of the feed.

16. Standards of performance for the phosphate fertilizer industry - Diammonium phosphate plants.

a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each granular diammonium phosphate plant having a design capacity of more than fifteen tons [13.60 metric tons] of equivalent P_2O_5 feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of reactors, granulators, dryers, coolers, screens, and mills. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

(2) "Granular diammonium phosphate plant" means any plant manufacturing granular diammonium phosphate by reacting phosphoric acid with ammonia.

(3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e or equivalent or alternative methods.

c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of thirty grams per metric ton of equivalent P_2O_5 feed [0.060 pounds per ton].

d. Monitoring of operations.

(1) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of ±five percent over its operating range.

(2) The owner or operator of any granular diammonium phosphate plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph 1 and then by proceeding according to subparagraph ~~a~~c of paragraph ~~4~~2 of subdivision e.

(3) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the scrubbing system. The monitoring device shall have an accuracy of ±five percent over its operating range.

e. Test methods and procedures.

~~(1) Reference methods in appendix A of this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:~~

~~(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content,~~

~~(b) Method 1 for sample and velocity traverses,~~

~~(c) Method 2 for velocity and volumetric flow rate,~~

~~(d) Method 3 for gas analysis.~~

~~(2) For method 13A or 13B, the sampling time for each run must be at least sixty minutes and the minimum sample volume must be at least eighty-five-hundredths dry cubic meter at standard conditions (30 dscf) except that shorter sampling times or smaller volumes when necessitated by process variables or other factors, may be approved by the department.~~

~~(3) The air pollution control system for the affected facility must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.~~

~~(4) Equivalent P_2O_5 feed must be determined as follows:~~

~~(a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.~~

~~(b) Calculate the equivalent P_2O_5 feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. method 9 is published in the Official Methods of Analysis of the~~

~~Association of Official Analytical Chemists, eleventh edition, 1970, pages 11-12. Other methods may be approved by the department.~~

~~(5) For each run, emissions expressed in grams per metric ton of equivalent P_2O_5 feed must be determined using the following equation:~~

$$\cancel{E = \frac{(C_s Q_s)\ 10^{-3}}{M_{P_2O_5}}}$$

~~where:~~

~~E = emissions of total fluorides in grams per metric ton of equivalent P_2O_5.~~

~~C_s = concentration of total fluorides in milligrams per dscm as determined by method 13A or 13B.~~

~~Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by method 2.~~

~~10^{-3} = conversion factor for milligrams to grams.~~

~~$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by paragraph 4.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the total fluorides standard in subdivision c of this subsection as follows:

(a) The emission rate (E) of total fluorides must be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si}\ Q_{sdi}\right) / (P\ K)$$

where:

E = emission rate of total fluorides, g/metric ton (lb/ton) of equivalent P_2O_5 feed.

C_{si} = concentration of total fluorides from emission point "i", mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr).

N = number of emission points associated with the affected facility.

P = equivalent P_2O_5 feed rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 mg/g [453,600 mg/lb].

(b) Method 13A or 13B must be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf].

(c) The equivalent P_2O_5 feed rate (P) must be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p = total mass flow rate of phosphorus-bearing feed, metric ton/hr (ton/hr).

R_p = P_2O_5 content, decimal fraction.

[1] The accountability system of paragraph 1 of subdivision d must be used to determine the mass flow rate (M_p) of the phosphorus-bearing feed.

[2] The Association of Official Analytical Chemists (AOAC) method 9 must be used to determine the P_2O_5 content (R_p) of the feed.

17. Standards of performance for the phosphate fertilizer industry - Triple superphosphate plants.

a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each triple superphosphate plant having a design capacity of more than fifteen tons [13.60 metric tons] of equivalent P_2O feed per calendar year. For the purpose of this subsection, the affected facility includes any combination of mixers, curing belts (dens), reactors, granulators, dryers, cookers, screens, mills, and facilities which store run-of-pile triple superphosphate. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Equivalent P_2O_5 feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

(2) "Run-of-pile triple superphosphate" means any triple superphosphate that has not been processed in a granulator and is composed of particulates at least twenty-five percent by weight of which (when not caked) will pass through a sixteen-mesh screen.

(3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.

(4) "Triple superphosphate plant" means any facility manufacturing triple superphosphate by reacting phosphate rock with phosphoric acid. A run-of-pile triple superphosphate plant includes curing and storing.

c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of one hundred grams per metric ton [0.20 pound per ton] of equivalent P_2O_5 feed.

d. Monitoring of operations.

(1) The owner or operator of any triple superphosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of ±five percent of its operating range.

(2) The owner or operator of any triple superphosphate plant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton per hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph 1 and then by proceeding according to subparagraph ~~b~~c of paragraph ~~4~~2 of subdivision e.

(3) The owner or operator of any triple superphosphate plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of ±five percent over its operating range.

e. Test methods and procedures.

~~(1) Reference methods in appendix A of this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:~~

~~(a) Method 13A or 13B for the concentration of total fluorides and the associated moisture content,~~

~~(b) Method 1 for sample and velocity traverses,~~

~~(c) Method 2 for velocity and volumetric flow rate,~~

~~(d) Method 3 for gas analysis,~~

~~(2) For method 13A or 13B, the sampling time for each run must be at least sixty minutes and the minimum sample volume must be at least eighty-five-hundredths dry cubic meter at standard conditions (30 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3) The air pollution control system for the affected facility must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.~~

~~(4) Equivalent~~ $\cancel{P_2O_5}$ ~~feed must be determined as follows:~~

~~(a) Determine the total mass rate in metric ton per hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of paragraph 1 of subdivision d.~~

~~(b) Calculate the equivalent~~ $\cancel{P_2O_5}$ ~~feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (A.O.A.C. method 9), times the total mass rate of phosphorus-bearing feed. A.O.A.C. method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, eleventh edition, 1970, pages 11-12. Other methods may be approved by the department.~~

~~(5) For each run, emissions expressed in grams per cubic ton of equivalent~~ $\cancel{P_2O_5}$ ~~feed must be determined using the following equation:~~

$$\cancel{E = \frac{(C_s Q_s)\, 10^{-3}}{M_{P_2O_5}}}$$

~~where:~~

~~E = emissions of total fluorides in grams per metric ton of equivalent~~ $\cancel{P_2O_5}$ ~~feed.~~

~~C_s = concentration of total fluorides in milligrams per dscm as determined by method 13A or 13B.~~

~~Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by method 2.~~

~~10^{-3} = conversion factor for milligrams to grams.~~

~~$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric ton per hour as determined by paragraph 4.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the total fluorides standard in subdivision c of this subsection as follows:

(a) The emission rate (E) of total fluorides must be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si}\, Q_{sdi}\right)/(P\ K)$$

where:

E = emission rate of total fluorides, g/metric ton (lb/ton) of equivalent P_2O_5 feed.

C_{si} = concentration of total fluorides from emission point "i", mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr).

N = number of emission points associated with the affected facility.

P = equivalent P_2O_5 feed rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 mg/g

[453,600 mg/lb].

(b) Method 13A or 13B must be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf].

(c) The equivalent P_2O_5 feed rate (P) must be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p = total mass flow rate of phosphorus-bearing feed, metric ton/hr (ton/hr).

R_p = P_2O_5 content, decimal fraction.

[1] The accountability system of paragraph 1 of subdivision d must be used to determine the mass flow rate (M_p) of the phosphorus-bearing feed.

[2] The Association of Official Analytical Chemists (AOAC) method 9 must be used to determine the P_2O_5 content (R_p) of the feed.

18. **Standards of performance for the phosphate fertilizer industry - Granular triple superphosphate storage facilities.**

a. Applicability and designation of affected facility. The affected facility to which the provisions of this subsection apply is each granular triple superphosphate storage facility. For the purpose of this subsection, the affected facility includes any combination of storage or curing piles, conveyors, elevators, screens, and mills. Any facility that commences construction or modification after October 22, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Equivalent P_2O_5 stored" means the quantity of phosphorus, expressed as phosphorus pentoxide, being cured or stored in the affected facility.

(2) "Fresh granular triple superphosphate" means granular triple superphosphate produced no more than ten days prior to the date of the performance test.

(3) "Granular triple superphosphate storage facility" means any facility curing or storing granular triple superphosphate.

(4) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in subdivision e, or equivalent or alternative methods.

c. Standard for fluorides. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of twenty-five-hundredths gram per hour per metric ton of equivalent P_2O_5 stored [5.0×10^{-4} pounds per hour per ton of equivalent P_2O_5 stored].

d. Monitoring of operations.

(1) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this subsection shall maintain an accurate account of triple superphosphate in storage to permit the determination of the amount of equivalent P_2O_5 stored.

(2) The owner or operator of any granular triple superphosphate storage facility shall maintain a daily record of total equivalent P_2O_5 stored by multiplying the percentage phosphorus pentoxide content, as determined by subparagraph ~~b~~c of paragraph ~~6~~2 of subdivision e, times the total mass of granular triple superphosphate stored.

(3) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this subsection shall install,

calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of ±five percent over its operating range.

e. Test methods and procedures.

~~(1)~~ ~~Reference methods in appendix A of this chapter, except as provided for in subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed in subdivision c of this subsection as follows:~~

~~(a)~~ ~~Method 13A or 13B for the concentration of total fluorides and the associated moisture content.~~

~~(b)~~ ~~Method 1 for sample and velocity traverses.~~

~~(c)~~ ~~Method 2 for velocity and volumetric flow rate.~~

~~(d)~~ ~~Method 3 for gas analysis.~~

~~(2)~~ ~~For method 13A or 13B, the sampling rate time for each run must be at least sixty minutes and the minimum sample volume must be at least eighty-five-hundredths dry cubic meter at standard conditions (30 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3)~~ ~~The air pollution control system for the affected facility must be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.~~

~~(4)~~ ~~Except as provided under paragraph 5, all performance tests on granular triple superphosphate storage facilities shall be conducted only when the following quantities of product are being cured or stored in the facility:~~

~~(a)~~ ~~Total granular triple superphosphate - at least ten percent of the building capacity.~~

~~(b) Fresh granular triple superphosphate - at least twenty percent of the amount of triple superphosphate in the building.~~

~~(5) If the provisions set forth in subparagraph b of paragraph 4 exceed production capabilities for fresh granular triple superphosphate, the owner or operator shall have at least five days maximum production of fresh granular triple superphosphate in the building during a performance test.~~

~~(6) Equivalent~~ $\cancel{P_2O_5}$ ~~stored must be determined as follows:~~

~~(a) Determine the total mass stored during each run using an accountability system meeting the requirements of paragraph 1 of subdivision d.~~

~~(b) Calculate the equivalent~~ $\cancel{P_2O_5}$ ~~stored by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanaphosphate method (A.O.A.C. method 9), times the total mass stored. A.O.A.C. method 9 is published in the Official Methods of Analysis of the Association of Official Analytical Chemists, eleventh edition, 1970, pages 11-12. Other methods may be approved by the department.~~

~~(7) For each run, emissions expressed in grams per hour per metric ton of equivalent~~ $\cancel{P_2O_5}$ ~~stored must be determined using the following equation:~~

$$\cancel{E = \frac{(C_s Q_s) 10^{-3}}{M_{P_2O_5}}}$$

~~where:~~

~~E = emissions of total fluorides in grams per hour per metric ton of equivalent~~ $\cancel{P_2O_5}$ ~~stored.~~

~~C_s = concentration of total fluorides in milligrams per dscm as determined by method 13A or 13B.~~

~~Q_s = volumetric flow rate of the effluent gas stream in dscm per hour as determined by method 2.~~

~~10^{-3} = conversion factor for milligrams to grams.~~

~~$M_{P_2O_5}$ = equivalent P_2O_5 feed in metric tons as measured by paragraph 4.~~

(1) The owner or operator shall conduct performance tests required in subsection 7 of section 33-15-12-01 only when the following quantities of product are being cured or stored in the facility.

(a) Total granular triple superphosphate is at least ten percent of the building capacity; and

(b) Fresh granular triple superphosphate is at least twenty percent of the total amount of triple superphosphate; or

(c) If the provision of subparagraph b of paragraph 1 of this subdivision exceeds production capabilities for fresh granular triple superphosphate, fresh granular triple superphosphate is equal to at least five days maximum production.

(2) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(3) The owner or operator shall determine compliance with the total fluorides standard in subdivision c of this subsection as follows:

(a) The emission rate (E) of total fluorides must be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^{N} C_{si} \; Q_{sdi}\right)/(P \; K)$$

where:

E = emission rate of total fluorides, g/metric ton (lb/ton) of equivalent P_2O_5 feed.

C_{si} = concentration of total fluorides from emission point "i", mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscm/hr (dscf/hr).

N = number of emission points associated with the affected facility.

P = equivalent P_2O_5 feed rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 mg/g [453,600 mg/lb].

(b) Method 13A or 13B must be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf].

(c) The equivalent P_2O_5 feed rate (P) must be computed for each run using the following equation:

$$P = M_p R_p$$

where:

M_p = total mass flow rate of phosphorus-bearing feed, metric ton/hr (ton/hr).

R_p = P_2O_5 content, decimal fraction.

[1]. The accountability system of paragraph 1 of subdivision d must be used to determine the mass flow rate (M_p) of the phosphorus-bearing feed.

[2]. The Association of Official Analytical Chemists (AOAC) method 9 must be used to determine the P_2O_5 content (R_p) of the feed.

19. Standards of performance for coal preparation plants.

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to any of the following affected facilities in coal preparation plants which process more than two hundred tons [181.44 metric tons] per day: thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), coal storage systems, and coal transfer and loading systems. Any facility that commences construction or modification after October 24, 1974, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Bituminous coal" means solid fossil fuel classified as bituminous coal by A.S.T.M. Designation D-388-77.

(2) "Coal" means all solid fossil fuels classified as anthracite, bituminous, subbituminous, or lignite by A.S.T.M. Designation D-388-77.

(3) "Coal preparation plant" means any facility (excluding underground mining operations) which prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying.

(4) "Coal processing and conveying equipment" means any machinery used to reduce the size of coal or to separate coal from refuse, and the equipment used to convey coal to or remove coal and refuse from the machinery. This includes, but is not limited to, breakers, crushers, screens, and conveyor belts.

(5) "Coal storage system" means any facility used to store coal except for open storage piles.

(6) "Cyclonic flow" means a spiraling movement of exhaust gases within a duct or stack.

(7) "Pneumatic coal-cleaning equipment" means any facility which classifies bituminous coal by size or separates bituminous coal from refuse by application of air streams.

(8) "Thermal dryer" means any facility in which the moisture content of bituminous coal is reduced by contact with a heated gas stream which is exhausted to the atmosphere.

(9) "Transfer and loading system" means any facility used to transfer and load coal for shipment.

c. Standards for particulate matter.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, an owner or operator subject to the provisions of this subsection may not cause to be discharged into the atmosphere from any thermal dryer gases which:

(a) Contain particulate matter in excess of seven-hundredths gram per dry cubic meter at standard conditions [0.031 gr/dscf].

(b) Exhibit twenty percent opacity or greater.

(2) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, an owner or operator subject to the provisions of this subsection may not cause to be discharged into the atmosphere from any pneumatic coal-cleaning equipment, gases which:

(a) Contain particulate matter in excess of four-hundredths gram per dry cubic meter at standard conditions [0.018 gr/dscf].

(b) Exhibit ten percent opacity or greater.

(3) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, an owner or operator subject to the provisions of this subsection may not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal, gases which exhibit twenty percent opacity or greater.

d. Monitoring of operations.

(1) The owner or operator of any thermal dryer shall install, calibrate, maintain, and continuously operate monitoring devices as follows:

(a) A monitoring device for the measurement of the temperature of the gas stream at the exit of the thermal dryer on a continuous basis. The monitoring device is to be certified by the manufacturer to be accurate within ±three degrees Fahrenheit.

(b) For affected facilities that use venturi scrubber emission control equipment:

[1] A monitoring device for the continuous measurement of the pressure loss through the venturi constriction of the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within ±one inch [2.54 centimeters] water gauge.

[2] A monitoring device for the continuous measurement of the water supply pressure to the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within ±five percent of design water supply pressure. The pressure sensor or tap must be located close to the water discharge point. The department may be consulted for approval of alternative locations.

(2) All monitoring devices under paragraph 1 are to be recalibrated annually in accordance with procedures ~~under paragraph 3~~ of subdivision b in subsection 11 of section 33-15-12-01.

e. Test methods and procedures.

~~(1) The reference methods in appendix A of this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01, are used to determine compliance with the standards prescribed in subdivision b of this subsection as follows:~~

~~(a) Method 5 for the concentration of particulate matter and associated moisture content.~~

~~(b)~~ ~~Method 1 for sample and velocity traverses.~~

~~(c)~~ ~~Method 2 for velocity and volumetric flow rate.~~

~~(d)~~ ~~Method 3 for gas analysis.~~

~~(2)~~ ~~For method 5, the sampling time for each run is at least sixty minutes and the minimum sample volume is eighty-five-hundredths dry cubic meter at standard conditions (30 dscf) except that shorter sampling terms or smaller volumes, when necessitated by process variables or other factors, may be approved by the department. Sampling is not to be started until thirty minutes after startup and is to be terminated before shutdown procedures commence. The owner or operator of the affected facility shall eliminate cyclonic flow during performance tests in a manner acceptable to the department.~~

~~(3)~~ ~~The owner or operator shall construct the facility so that particulate emissions from thermal dryers or pneumatic coal-cleaning equipment can be accurately determined by applicable test methods and procedures under paragraph 1.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the particulate matter standards in subdivision c of this subsection as follows:

(a) Method 5 must be used to determine the particulate matter concentration. The sampling time and sample volume for each run must be at least sixty minutes and 0.85 dry cubic meter at standard conditions [30 dscf]. Sampling must begin no less than thirty minutes after startup and shall terminate before shutdown procedures begin.

(b) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

20. **Standards of performance for lime manufacturing plants.**

a. Applicability and designation of affected facility.

(1) The provisions of this subsection are applicable to each rotary lime kiln used in the manufacture of lime.

(2) The provisions of this subsection are not applicable to facilities used in the manufacture of lime at kraft pulp mills.

(3) Any facility under paragraph 1 that commences construction or modification after May 3, 1977, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the same meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Lime manufacturing plant" includes any plant which uses a rotary lime kiln to produce lime product from limestone by calcination.

(2) "Lime product" means the product of the calcination process including, but not limited to, calcitic lime, dolomitic lime, and dead-burned dolomite.

(3) "Positive-pressure fabric filter" means a fabric filter with the fans on the upstream side of the filter bags.

(4) "Rotary lime kiln" means a unit with an inclined rotating drum which is used to produce a lime product from limestone by calcination.

(5) "Stone feed" means limestone feed stock and millscale or other iron oxide additive that become part of the product.

c. Standard for particulate matter. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any rotary lime kiln any gases which contain particulate matter in excess of 0.30 kilogram per megagram [0.60 pounds per ton] of stone feed and greater than fifteen percent opacity when exiting from a dry emission control device.

d. Monitoring of emissions and operations.

(1) The owner or operator of a facility that is subject to the provisions of this subsection shall install, calibrate, maintain, and operate a continuous monitoring system, except as provided in paragraphs 2 and 3, to monitor and record the opacity of a representative portion of the gases discharged into the atmosphere from any rotary lime kiln. The span of this system must be set at forty percent opacity.

(2) The owner or operator of any rotary lime kiln having a control device with a multiple stack exhaust or a roof monitor may, in lieu of the continuous opacity monitoring requirement of paragraph 1 of subdivision d, monitor visible emissions at least once per day of operation by using a certified visible emissions observer who, for each site where visible emissions are observed, will perform three method 9 tests and record the results. Visible emission observations shall occur during normal operation of the rotary lime kiln at least once per day. For at least three 6-minute periods, the opacity shall be recorded for any points where visible emissions are observed, and the corresponding feed rate of the kiln shall also be recorded. Records shall be maintained of any six-minute average that is in excess of the emissions specified in paragraph 1 of subdivision c.

(3) The owner or operator of any rotary lime kiln using a wet scrubbing emission control device subject to the provisions of this subsection shall not be required to monitor the opacity of the gases discharged as required in paragraph 1 of this subdivision, but shall install, calibrate, maintain, operate, and record the resultant information from the following continuous monitoring devices:

(a) A monitoring device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be accurate within ±250 pascals [1 inch of water].

(b) A monitoring device for continuous measurement of the scrubbing liquid supply pressure to the control device. The monitoring device must be accurate within ±5 percent of the design scrubbing liquid supply pressure.

(4) For the purpose of conducting a performance test under subsection 7 of section 33-15-12-01, the owner or operator of any lime manufacturing plant subject to the provisions of this subsection shall install, calibrate, maintain, and operate a device for measuring the mass rate of stone feed to any affected rotary lime kiln. The measuring device used must be accurate to within ±5 percent of the mass rate over its operating range.

(5) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that must be reported are defined as all six-minute periods during which the average opacity of the visible emissions from any lime kiln subject to paragraph 1 of this subdivision is greater than fifteen percent or, in the case of wet scrubbers, any period in which the scrubber pressure drop is greater than thirty percent below the rate established during the performance test. ~~Reports of excess emissions recorded during observations made as required by paragraph 3 of subdivision e must be submitted semiannually.~~ If visible emission observations are made according to paragraph 2 of this subdivision, reports of excess emissions must be submitted semiannually.

e. Test methods and procedures.

~~(1) Reference methods in appendix A of this chapter, except as provided under subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with paragraph 1 of subdivision c as follows:~~

~~(a) Method 1 for sample velocity traverses;~~

~~(b) Method 2 for velocity and volumetric flow rate;~~

~~(c)~~ ~~Method 3 for gas analysis,~~

~~(d)~~ ~~Method 4 for stack gas moisture,~~

~~(e)~~ ~~Method 5 or 5B for the measurement of particulate matter, and~~

~~(f)~~ ~~Method 9 for visible emissions.~~

~~(2)~~ ~~For method 5 or 5B, the sampling time for each run must be at least sixty minutes, and the sampling rate must be at least 0.85 std~~ ~~m^3/hr,~~ ~~dry basis (0.53 dscf/min), except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.~~

~~(3)~~ ~~Visible emission observations of a control device with a multiple stack exhaust or a roof monitor shall occur during normal operation of the rotary lime kiln, at least once per day of operation. For at least three 6-minute periods, the opacity shall be recorded for any points where visible emissions are observed, and the corresponding feed rate of the kiln shall also be recorded. These observations shall be taken in accordance with method 9. Records shall be maintained of any six-minute average that is in excess of the emissions limit specified in paragraph 1 of subdivision e.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the particulate matter standard in subdivision c of this subsection as follows:

(a) The emission rate (E) of particulate matter must be computed for each run using the following equation

$$E = (C_s\ Q_{sd})/(P\ K)$$

where:

E = emission rate of particulate matter, kg/Mg (lb/ton) of stone feed.

C_s = concentration of particulate matter, g/dscm (g/dscf).

P = stone feed rate, Mg/hr (ton/hr).

K = conversion factor, 1000 g/kg [453.6 g/lb].

(b) Method 5 must be used at negative-pressure fabric filters and other types of control devices and method 5D must be used as positive-pressure fabric filters to determine the particulate matter concentration (C_s) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume for each run must be at least sixty minutes and 0.90 dry cubic meter at standard conditions [31.8 dscf].

(c) The monitoring device of paragraph 4 of subdivision d of this subsection must be used to determine the stone fee rate (P) for each run.

(d) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(3) During the particulate matter run, the owner or operator shall use the monitoring devices in subparagraph a of paragraph 3 of subdivision d of this subsection to determine the average pressure loss of the gas stream through the scrubber and the average scrubbing liquid supply pressure.

21. Standards of performance for stationary gas turbines.

a. Applicability and designation of affected facility. The provisions of this subsection are applicable to the following affected facilities; all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour [10 million Btu/hour], based on the lower heating value of the fuel fired. Any facility that commences construction, modification, or reconstruction after October 3, 1977, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in section 33-15-12-01.

(1) "Base load" means the load level at which a gas turbine is normally operated.

(2) "Combined cycle gas turbine" means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to heat water or generate steam.

(3) "Efficiency" means the gas turbine manufacturer's rated heat rate at peak load in terms of heat input per unit of power output based on the lower heating value of the fuel.

(4) "Electric utility stationary gas turbine" means any stationary gas turbine constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale.

(5) "Emergency fuel" is a fuel fired by a gas turbine only during circumstances, such as natural gas supply curtailment or breakdown of delivery system, that make it impossible to fire natural gas in the gas turbine.

(6) "Emergency gas turbine" means any stationary gas turbine which operates as a mechanical or electrical power source only when the primary power source for a facility has been rendered inoperable by an emergency situation.

(7) "Firefighting turbine" means any stationary gas turbine that is used solely to pump water for extinguishing fires.

(8) "Garrison facility" means any permanent military installation.

(9) "Gas turbine model" means a group of gas turbines having the same nominal air flow, combustor inlet pressure, combustor inlet temperature, firing temperature, turbine inlet temperature, and turbine inlet pressure.

(10) "Ice fog" means an atmospheric suspension of highly reflective ice crystals.

(11) "ISO standard day conditions" means two hundred eighty-eight degrees Kelvin, sixty

percent relative humidity and 101.3 kilopascals pressure.

(12) "Metropolitan statistical area" is as defined by the department of commerce.

(13) "Peak load" means one hundred percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.

(14) "Regenerative cycle gas turbine" means any stationary gas turbine which recovers heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine.

(15) "Regenerative cycle gas turbine" means any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustor.

(16) "Simple cycle gas turbine" means any stationary gas turbine which does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or which does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

(17) "Stationary gas turbine" means any simple cycle gas turbine, regenerative cycle gas turbine, or any gas turbine portion of a combined cycle steam/electric generating system that is not self-propelled. It may, however, be mounted on a vehicle for portability.

(18) "Turbines employed in oil/gas production or oil/gas transportation" means any stationary gas turbine used to provide power to extract crude oil/natural gas from the earth or to move crude oil/natural gas, or products refined from the substances through pipelines.

c. Standard for nitrogen oxides.

(1) On and after the date on which the performance test required by subsection 7 of section 33-15-12-01 is completed, every owner or operator subject to the provisions of this subsection, as specified in paragraphs 2, 3, and 4 shall comply with one of the following, except as provided in paragraphs 5, 6, 7, 8, 9, 10, and 11.

(a) No owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NO_2 emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y may not exceed 14.4 kilojoules per watt hour.

F = NO_2 emission allowance for fuel-bound nitrogen as defined in subparagraph c.

(b) No owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NO_2 emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated peak load (kilojoules per watt hour), or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y may not exceed 14.4 kilojoules per watt hour.

F = NO_2 emission allowance for fuel-bound nitrogen as defined in subparagraph c.

(c) F must be defined according to the nitrogen content of the fuel as follows:

Fuel-Bound Nitrogen (percent by weight)	F (NO_x percent by volume)
$N \leq 0.015$	0
$0.015 < N \leq 0.1$	$0.04(N)$
$0.1 < N \leq 0.25$	$0.004 + 0.0067(N-0.1)$
~~N > 0.25~~	~~0.0057~~
$N > 0.25$	0.005

where:

N = the nitrogen content of the fuel (percent by weight)

or:

Manufacturers may develop custom fuel-bound nitrogen allowances for each gas turbine model they manufacture. These fuel-bound nitrogen allowances must be substantiated with data and must be approved for use by the department and administrator before the initial performance test required by subsection 7 of section 33-15-12-01.

(2) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour [100 million Btu/hour] based on the lower heating value of the fuel fired shall comply with the provisions of subparagraph a of paragraph 1.

(3) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour [10 million Btu/hour] but less than or equal to 107.2 gigajoules per hour [100 million Btu/hour] based on the lower heating value of the fuel fired, shall comply with the provisions of subparagraph b of paragraph 1.

(4) Stationary gas turbines with a manufacturer's rated base load at ISO conditions of thirty megawatts or less except as provided in

paragraph 2 shall comply with subparagraph b of paragraph 1.

(5) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour [10 million Btu/hour] but less than or equal to 107.2 gigajoules per hour [100 million Btu/hour] based on the lower heating value of the fuel fired and that have commenced construction prior to October 3, 1982, are exempt from paragraph 1.

(6) Stationary gas turbines using water or steam injection for control of nitrogen oxide emissions are exempt from paragaph 1 when ice fog is deemed a traffic hazard by the owner or operator of the gas turbine.

(7) Emergency gas turbines, military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and firefighting gas turbines are exempt from paragraph 1.

(8) Stationary gas turbines engaged by manufacturers in research and development of equipment for both gas turbine emission control techniques and gas turbine efficiency improvements are exempt from paragraph 1 on a case-by-case basis as determined by the department.

(9) Exemptions from the requirements of paragraph 1 will be granted on a case-by-case basis as determined by the department in specific geographical areas where mandatory water restrictions are required by governmental agencies because of drought conditions. These exemptions will be allowed only while the mandatory water restrictions are in effect.

(10) Stationary gas turbines with a heat input greater than or equal to 10.7 gigajoules per hour [10 million Btu/hour] when fired with natural gas are exempt from subparagraph b of paragraph 1 when being fired with an emergency fuel.

(11) Regenerative cycle gas turbines with a heat input less than or equal to 107.2 gigajoules per hour [100 million Btu/hour] are exempt from paragraph 1.

d. Standard for sulfur dioxide. On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, every owner or operator subject to the provisions of this subsection shall comply with one or the other of the following conditions:

  (1) No owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at fifteen percent oxygen and on a dry basis.

  (2) No owner or operator subject to the provisions of this subsection may burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

e. Monitoring of operations.

  (1) The owner or operator of any stationary gas turbine subject to the provisions of this subsection and using water injection to control nitrogen oxide emissions shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system must be accurate to within ±five percent and must be approved by the department.

  (2) The owner or operator of any stationary gas turbine subject to the provisions of this subsection shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values must be as follows:

    (a) If the turbine is supplied its fuel from a bulk storage tank, the values must be determined on each occasion that fuel is transferred to the storage tank from any other source.

    (b) If the turbine is supplied its fuel without intermediate bulk storage, the values must be determined and recorded daily. Owners, operators, or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules must be substantiated with data and must be approved by the department before they can be used to comply with this paragraph.

(3) For the purpose of reports required under subdivision c of subsection 6 of section 33-15-12-01, periods of excess emissions that must be reported are defined as follows:

(a) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with subdivision c by the performance test required in subsection 7 of section 33-15-12-01 of any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in subsection 7 of section 33-15-12-01. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under paragraph 1 of subdivision f.

(b) Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

(c) Ice fog. Each period during which an exemption provided in paragraph 7 of subdivision c is in effect must be reported in writing to the department quarterly. For each period, the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time the air pollution control system was reactivated must be reported. All quarterly reports must be postmarked by the thirtieth day following the end of each calendar quarter.

(d) Emergency fuel. Each period during which an exception provided in paragraph 10 of subdivision c is in effect must be included in the report required in subdivision c of subsection 6 of section 33-15-12-01. For each period, the type, reasons, and duration of the firing of the emergency fuel must be reported.

f. Test methods and procedures.

~~(1) The reference methods in appendix A to this chapter, except as provided in subdivision b of subsection 7 of section 33-15-12-01 must be used to determine compliance with the standards prescribed in subdivision c as follows:~~

~~(a) Reference method 20 for the concentration of nitrogen oxides and oxygen. For affected facilities under this subsection, the span value must be three hundred parts per million of nitrogen oxides.~~

~~(1) The nitrogen oxides emission level measured by reference method 20 must be adjusted to ISO standard day conditions by the following ambient condition correction factor:~~

~~$$NO_x = (NO_{x_{obs}})\left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19}(H_{obs}-0.00633)\left(\frac{T_{AMB}}{288^{\circ}K}\right)^{1.53}$$~~

~~where:~~

~~NO_x = emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.~~

~~$NO_{x_{obs}}$ = measured NO_x emissions at 15 percent oxygen ppmv.~~

~~P_{ref} = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure.~~

~~P_{obs} = measured combustor inlet absolute pressure at test ambient pressure.~~

~~H_{obs} = specific humidity of ambient air at test.~~

~~e = transcendental constant (2.718)~~

~~T_{AMB} = temperature of ambient air at~~

~~test.~~

~~The adjusted nitrogen oxide emission level must be used to determine compliance with subdivision e.~~

~~(2)~~ ~~Manufacturers may develop custom ambient condition correction factors for each gas turbine model they manufacture in terms of combustor inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature to adjust the nitrogen oxides emission level measured by the performance test as provided for in subsection 7 of section 33-15-12-01 to ISO standard day conditions. These ambient condition correction factors must be substantiated with data and must be approved for use by the department and administrator before the initial performance test required by subsection 7 of section 33-15-12-01.~~

~~(3)~~ ~~The water-to-fuel ratio necessary to comply with subdivision e will be determined during the initial performance test by measuring nitrogen oxide emission using reference method 20 and the water-to-fuel ratio necessary to comply with subdivision e at thirty, fifty, seventy-five, and one hundred percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads must be corrected to ISO standard day conditions using the appropriate equation supplied by the manufacturer.~~

~~(b)~~ ~~The analytical methods and procedures employed to determine the nitrogen content of the fuel being fired must be approved by the department and must be accurate to within ±five percent.~~

~~(2)~~ ~~The method for determining compliance with subdivision d, except as provided in subdivision b of subsection 7 of section33-15-12-01, must be as follows:~~

~~(a) Reference method 20 for the concentration of sulfur dioxide and oxygen, or~~

~~(b) American society of testing and materials D2880-71 for the sulfur content of liquid fuels and American society of testing and materials D1072-80, D3031-81, D4084-82, or D3246-81 for the sulfur content of gaseous fuels. These methods must also be used to comply with paragraph 2 of subdivision e. The applicable ranges of some A.S.T.M. methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples prior to analysis (with verification of the dilution ratio) is allowable subject to the approval of the department.~~

~~(3) Analysis for the purpose of determining the sulfur content and the nitrogen content of the fuel as required by paragraph 2 of subdivision e, may be performed by the owner/operator, a service contractor retained by the owner/operator, the fuel vendor, or any other qualified agency, provided, that the analytical methods employed by these agencies comply with the applicable paragraphs of this subdivision.~~

(1) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within five percent and are approved by the department and administrator to determine the nitrogen content of the fuel being fired.

(2) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided for in subdivision b of subsection 7 of section 33-15-12-01. Acceptable alternative methods and procedures are given in paragraph 6 of this subdivision.

(3) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in subdivision c and paragraph 1 of subdivision d as follows:

(a) The nitrogen oxides emission rate (NO_x) must be computed for each run using the following equation:

$$NO_x = (NO_{xo})(P_r/P_o)0.5e^{19(Ho - 0.00633)} (288^{\circ}K/T_a)^{1.53}$$

where:

NO_x = emission rate of NO_x at 15 percent O_2 and ISO standard ambient conditions, volume percent.

NO_{xo} = observed NO_x concentration, ppm by volume.

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.

P_o = observed combustor inlet absolute pressure at test, mm Hg.

H_o = observed humidity of ambient air, gH_2O/g air.

e = transcendental constant, 2.718.

T_a = ambient temperature, $^{\circ}K$.

(b) The monitoring device of paragraph 1 of subdivision e must be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with subdivision c at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads must be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

(c) Method 20 must be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values must be three hundred parts per million of nitrogen oxide and twenty-one percent oxygen. The nitrogen oxides emissions must be determined at each of the load conditions specified in subparagraph b of paragraph 3 of this subdivision.

(4) The owner or operator shall determine compliance with the sulfur content standard in

paragraph 2 of subdivision d as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82 or D 3246-81 must be used for the sulfur content of gaseous fuels. The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the department.

(5) To meet the requirements of paragraph 2 of subdivision e, the owner or operator shall use the methods specified in paragraphs 1 and 4 to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

(6) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision:

(a) Instead of using the equation in subparagraph a of paragraph 2 of this subdivision, manufacturers may develop ambient condition correction factors to adjust the nitrogen oxides emission level measured by the performance test as provided in subsection 7 of section 33-15-12-01 to ISO standard day conditions. These factors are developed for each gas turbine model they manufacture in terms of combustion inlet pressure, ambient air pressure, ambient air humidity, and ambient air temperature. They must be substantiated with data and must be approved for use by the administrator and department before the initial performance test required by subsection 7 of section 33-15-12-01. Notices of approval of custom ambient condition correction factors will be published.

22. **Standards of performance for grain elevators.**

a. Applicability and designation of affected facility. The provisions of this subsection apply to each affected facility at any grain terminal elevator or any grain storage elevator, except as provided under subdivision e. The affected facilities are each truck loading or unloading station, barge and ship loading or unloading station, railcar loading or unloading station, grain dryer, and all grain handling operations. Any facility which commences construction, modification, or reconstruction, after August 3, 1978, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in section 33-15-12-01.

(1) "Capture system" means the equipment such as sheds, hoods, ducts, fans, dampers, etc., used to collect particulate matter generated by an affected facility at a grain elevator.

(2) "Column dryer" means any equipment used to reduce the moisture content of grain in which the grain flows from the top to the bottom in one or more continuous packed columns between two perforated metal sheets.

(3) "Fugitive emission" means the particulate matter which is not collected by a capture system and is released directly into the atmosphere from an affected facility at a grain elevator.

(4) "Grain elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded.

(5) "Grain handling operations" include bucket elevators or legs (excluding legs used to unload barges or ships), scale hoppers and surge bins (garners), turn heads, scalpers, cleaners, trippers, and the headhouse and other such structures.

(6) "Grain loading station" means that portion of a grain elevator where the grain is transferred from the elevator to a truck, railcar, barge, or ship.

(7) "Grain" means corn, wheat, sorghum, rice, rye, oats, barley, and soybeans.

(8) "Grain storage elevator" means any grain elevator located at any wheat flour mill, wet

corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of thirty-five thousand two hundred cubic meters [circa 1,000,000 bushels].

(9) "Grain terminal elevator" means any grain elevator which has a permanent storage capacity of more than eighty-eight thousand one hundred cubic meters [circa 2,500,000 bushels], except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries, and livestock feedlots.

(10) "Grain unloading station" means that portion of a grain elevator where the grain is transferred from a truck, railcar, barge, or ship to a receiving hopper.

(11) "Permanent storage capacity" means grain storage capacity which is inside a building, bin, or silo.

(12) "Process emission" means the particulate matter which is collected by a capture system.

(13) "Rack dryer" means any equipment used to reduce the moisture content of grain in which the grain flows from the top to the bottom in a cascading flow around rows of baffles (racks).

(14) "Railcar" means railroad hopper car or boxcar.

(15) "Unloading leg" means a device which includes a bucket-type elevator which is used to remove grain from a barge or ship.

c. Standard for particulate matter.

(1) On and after the sixtieth day of achieving the maximum production rate at which the affected facility will be operated, but no later than one hundred eighty days after initial startup, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere any gases which exhibit greater than zero percent opacity from any:

(a) Column dryer with column plate perforation exceeding two and four-tenths millimeters diameter [circa 0.094 inch].

    (b) Rack dryer in which exhaust gases pass through a screen filter coarser than fifty mesh.

(2) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any affected facility except a grain dryer any process emission which:

    (a) Contains particulate matter in excess of 0.023 gram per dry cubic meter at standard conditions [circa 0.01 gr/dscf].

    (b) Exhibits greater than zero percent opacity.

(3) On and after the sixtieth day of achieving the maximum production rate at which the affected facility will be operated, but no later than one hundred eighty days after initial startup, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere any fugitive emission from:

    (a) Any individual truck unloading station, railcar unloading station, or railcar loading station, which exhibits greater than five percent opacity.

    (b) Any grain handling operation which exhibits greater than zero percent opacity.

    (c) Any truck loading station which exhibits greater than ten percent opacity.

    (d) Any barge or ship loading station which exhibits greater than twenty percent opacity.

(4) The owner or operator of any barge or ship unloading station shall operate as follows:

    (a) The unloading leg must be enclosed from the top (including the receiving hopper) to the centerline of the bottom pulley and ventilation to a control device must be maintained on both sides of the leg and the grain receiving hopper.

(b) The total rate of air ventilated must be at least thirty-two and one-tenth actual cubic meters per cubic meter of grain handling capacity [circa 40 cubic feet per bushel].

(c) Rather than meet the requirements of subparagraphs a and b, the owner or operator may use other methods of emission control if it is demonstrated to the administrator's and department's satisfaction that they would reduce emissions of particulate matter to the same level or less.

d. Test methods and procedures.

~~(1) Reference methods in appendix A to this chapter, except as provided under subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standard prescribed under subdivision c as follows:~~

~~(a) Method 5 or 17 for concentration of particulate matter and associated moisture content.~~

~~(b) Method 1 for sample and velocity traverses.~~

~~(c) Method 2 for velocity and volumetric flow rate.~~

~~(d) Method 3 for gas analysis.~~

~~(e) Method 9 for visible emissions.~~

~~(2) For method 5, the sampling probe and filter holder must be operated without heaters. The sampling time for each run, using method 5 or 17, must be at least sixty minutes. The minimum sample volume must be 1.7 dry cubic meter at standard conditions [circa 60 dscf].~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Acceptable alternative methods and procedures are given in paragraph 3 of this subdivision.

(2) The owner or operator shall determine compliance with the particulate matter standards in subdivision c as follows:

(a) Method 5 must be used to determine the particulate matter concentration and the volumetric flow rate of the effluent gas. The sampling time and sample volume for each run must be at least sixty minutes and 1.70 dry cubic meters of standard conditions (60 dscf). The probe and filter holder must be operated without heaters.

(b) Method 2 must be used to determine the ventilation volumetric flow rate.

(c) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(3) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision: for method 5, method 17 may be used.

e. Modifications.

(1) The factor 6.5 must be used in place of "annual asset guidelines repair allowance percentage", to determine whether a capital expenditure as defined by subdivision c of subsection 2 of section 33-15-12-01 has been made to an existing facility.

(2) The following physical changes or changes in the method of operation may not by themselves be considered a modification of any existing facility:

(a) The addition of gravity loadout spouts to existing grain storage or grain transfer bins.

(b) The installation of automatic grain weighing scales.

(c) Replacement of motor and drive units driving existing grain handling equipment.

(d) The installation of permanent storage capacity with no increase in hourly grain handling capacity.

23. **Standards of performance for onshore natural gas processing; SO_2 emissions.**

a. Applicability and designation of affected facilities.

(1) The provisions of this subsection are applicable to the following affected facilities that process natural gas: each sweetening unit, and each sweetening unit followed by a sulfur recovery unit.

(2) Facilities that have a design capacity less than two long tons per day (LT/D) of hydrogen sulfide (H_2S) in the acid gas (expressed as sulfur) are required to comply with paragraph 3 of subdivision h but are not required to comply with subdivisions c through g.

(3) The provisions of this subsection are applicable to facilities located on land and include facilities located onshore which process natural gas produced from either onshore or offshore wells.

(4) The provisions of this subsection apply to each affected facility identified in paragraph 1 of this subdivision which commences construction or modification after January 20, 1984.

(5) The provisions of this subsection do not apply to sweetening facilities producing acid gas that is completely reinjected into oil-bearing or gas-bearing geologic strata or that is otherwise not released to the atmosphere.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Acid gas" means a gas stream of hydrogen sulfide (H_2S) and carbon dioxide (CO_2) that has been separated from sour natural gas by a sweetening unit.

(2) "E" equals the sulfur emission rate expressed as elemental sulfur, kilograms per hour (kg/hr) rounded to one decimal place.

(3) "Natural gas" means a naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface. The principal hydrocarbon constituent is methane.

(4) "Onshore" means all facilities except those that are located in the territorial seas or on the outer continental shelf.

(5) "Reduced sulfur compounds" means hydrogen sulfide (H_2S), carbonyl sulfide (COS), and carbon disulfide (CS_2).

(6) "R" equals the sulfur emission reduction efficiency achieved in percent, carried to one decimal place.

(7) "S" equals the sulfur production rate in kilograms per hour (kg/hr) rounded to one decimal place.

(8) "Sulfur production rate" means the rate of liquid sulfur accumulation from the sulfur recovery unit.

(9) "Sulfur recovery unit" means a process device that recovers element sulfur from acid gas.

(10) "Sweetening unit" means a process device that separates the hydrogen sulfide and carbon dioxide contents from the sour natural gas stream.

(11) "Total sulfur dioxide equivalents" means the sum of volumetric or mass concentrations of the sulfur compounds obtained by adding the quantity existing as sulfur dioxide to the quantity of sulfur dioxide that would be obtained if all reduced sulfur compounds were converted to sulfur dioxide (ppmv or kg/DSCM).

(12) "X" equals the sulfur feed rate, i.e., the hydrogen sulfide in the acid gas (expressed as sulfur) from the sweetening unit, expressed in long tons per day (LT/D) of sulfur rounded to one decimal place.

(13) "Y" equals the sulfur content of the acid gas from the sweetening unit, expressed as mole percent hydrogen sulfide (dry basis) rounded to one decimal place.

(14) "Z" equals the minimum required sulfur dioxide emission reduction efficiency, expressed as percent carried to one decimal place. Z_i refers to the reduction efficiency required at the initial performance test. Z_c refers to the reduction efficiency required on a continuous basis after compliance with Z_i has been demonstrated.

c. Standards for sulfur dioxide.

(1) During the initial performance test required by subdivision b of subsection 7 of section 33-15-12-01, each owner or operator shall achieve at a minimum, a sulfur dioxide emission reduction efficiency (Z_i) to be determined from Table 1 based on the sulfur feed rate (X) and the sulfur content of the acid gas (Y) of the affected facility.

(2) After demonstrating compliance with the provisions of paragraph 1 of this subdivision, the owner or operator shall achieve at a minimum, a sulfur dioxide emission reduction efficiency (Z_c) to be determined from table 2 based on the sulfur feed rate (X) and the sulfur content of the acid gas (Y) of the affected facility.

d. Compliance provisions.

(1) To determine compliance with the standards for sulfur dioxide specified in paragraph 1 of subdivision c, during the initial performance test as required by subsection 7 of section 33-15-12-01, the minimum required sulfur dioxide emission reduction efficiency (Z) is compared to the emission reduction efficiency (R) achieved by the sulfur recovery technology.

(a) If $R \geq Z_i$, the affected facility is in compliance.

(b) If $R < Z_i$, the affected facility is not in compliance.

(2) Following the initial determination of compliance as required by subsection 7 of section 33-15-12-01, any subsequent compliance determinations that may be required by the department would compare R to Z_c. The

emission reduction efficiency (R) achieved by the sulfur recovery technology ~~is calculated by using the equation.~~ shall be determined using the procedures in subparagraph a of paragraph 3 of subdivision e.

~~"S" and "B" are determined using the procedures and test methods specified in subdivisions e and f.~~

Table 1. Required Minimum Initial SO_2 Emission Reduction Efficiency (Z_i)

H_2S content of acid gas (Y), %	Sulfur feed rate (X), LT/D $2.0<X<5.0$	$5.0<X\leq 15.0$	$15.0<X\leq 300.0$	$X>300.0$
$Y\geq 50$	79.0	. . . . $88.51x^{0.0101}Y^{0.0125}$ . . . . . or 99.8, whichever is smaller		
$20\leq Y<50$	79.0	. . . . $88.51X^{0.0101}Y^{0.0125}$ or 97.9, whichever is smaller		97.9
$10\leq Y<20$	79.0	$88.51X^{0.0101}Y^{0.0125}$ or 93.5, whichever is smaller	93.5	93.5
$Y<10$	79.0	79.0	79.0	79.

Table 2. Required Minimum SO_2 Emission Reduction Efficiency (Z_c)

H_2S content of acid gas (Y), %	Sulfur feed rate (X), LT/D $2.0\leq X\leq 5.0$	$5.0<X\leq 15.0$	$15.0<X\leq 300.0$	$X>300.0$
$Y\geq 50$	74.0	. . . .$85.35X^{0.0144}Y^{0.0128}$ . . . . . . or 99.8, whichever is smaller		
$20\leq Y<50$	74.0	. . . . $85.35X^{0.0144}Y^{0.0128}$ or 97.5, whichever is smaller		97.5
$10\leq Y<20$	74.0	$85.35X^{0.0144}Y^{0.0128}$ or 90.8, whichever is smaller	90.8	90.8
$Y<10$	74.0	74.0	74.0	74.

e. ~~Performance test procedures.~~ Test methods and procedures.

~~(1) During a performance test required by subsection 7 of section 33-15-12-01, the minimum required sulfur dioxide emission reduction efficiency (Z_i) required by paragraph 1 of subdivision c and the minimum required sulfur dioxide emission reduction efficiency (Z_c) required by paragraph 2 of subdivision c are determined as follows:~~

~~(a) Collect and analyze at least one sample per hour (at equally spaced intervals during the performance test) of the acid gas from the sweetening unit using the method specified in subparagraph h of paragraph 1 of subdivision f. The units of the result from the tutwiler procedure can be converted to volume percent using the following equation:~~

~~$Y = (1.62 \times 10^{-3})X$(grains/100 scf)~~

~~where:~~

~~Y = H_2S concentration, volume percent.~~

~~1.62×10^{-3} = volume percent per grains/100 scf, and grains/100 scf = tutwiler result basis.~~

~~(b) Calculate the arithmetic mean of all samples to determine the average hydrogen sulfide concentration (Y) in mole percent (dry basis) in the acid gas.~~

~~(c) Determine the average volumetric flow rate of the acid gas from the sweetening unit by continuous measurements made with the process flow meter. Express the results as dry standard cubic feet per day (dscf/day).~~

~~(d) Calculate the average sulfur feed rate (X) in long tons per day of elemental sulfur from the average volumetric flow rate and the average hydrogen sulfide content (from paragraph 1 of subdivision e) by the equation:~~

~~X = (average volumetric acid gas flow, dscf/day) (Y/100) (32 lb/lb mole) / (385.36 standard cubic feet/lb mole) (2,240 lbs/long ton)~~

~~(c) Determine the minimum required sulfur dioxide removal efficiency (Z_i or Z_e) in accordance with the provisions of the standards in paragraph 1 or 2 of subdivision c as appropriate.~~

~~(2) The actual sulfur emission reduction efficiency (R) achieved by the control technology during the performance test is determined as follows:~~

~~(a) Measure the liquid sulfur accumulation rate in the product storage tanks using level indicators or manual soundings. Record the level reading at the beginning and end of each test run. Convert the level readings to mass (kilograms) of sulfur in the storage tanks, using the tank geometry and the sulfur density at the temperature of storage. Divide the change in mass by the test duration (hours and fractions of hours) to determine the sulfur production rate in kilograms per hour for each run.~~

~~(b) Calculate the arithmetic mean of the rate for each run to determine the average sulfur production rate (S) to use in subparagraph a of paragraph 2 of subdivision d.~~

~~(c) Measure the concentrations of sulfur dioxide and total reduced sulfur compounds in the incinerator (or other final processing unit) exhaust gas using the methods specified in subparagraphs c through g of paragraph 1 of subdivision f. The minimum sampling time for each run shall be four hours. For each run the sulfur dioxide and total reduced sulfur concentrations must be combined to calculate the total sulfur dioxide equivalent concentration as follows:~~

~~Total SO_2 equivalent, (kg/dscm)~~
~~= 0.001 (SO_2 concentration mg/dscm from method 6)~~
~~-2.704 x 10^{-6} (SO_2 equivalents in ppmv, dry from method 15 or from method 16A)~~

~~(d) Measure the incinerator (or other final processing unit) exhaust gas velocity, molecular weight, and moisture content using the methods specified in subparagraphs a through d of paragraph 1 of subdivision f. Calculate the volumetric flow rate of the exhaust gas at dry standard conditions using equation 2-10 in method 2.~~

~~(e) Calculate the equivalent sulfur emission rate as elemental sulfur for each run as follows:~~

~~Sulfur emission rate~~
~~= (total SO_2 equivalent kg/dscm) (gas flow rate, dscm/hr)(0.50)~~

~~Calculate the arithmetic mean of the sulfur emission rate for each run to determine the average sulfur emission rate (E) to use in subparagraph a of paragraph 2 of subdivision d.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) During a performance test required by subsection 7 of section 33-15-12-01, the owner or operator shall determine the minimum required reduction efficiencies (Z) of sulfur dioxide emissions as required in paragraph 1 of subdivision c as follows:

(a) The average sulfur feed rate (X) must be computed as follows:

$X = K Q_a Y$

where:

X = average sulfur feed rate, long tons/day.

Q_a = average volumetric flow rate of acid gas from sweetening unit, dscf/day.

Y = average H_2S concentration in acid gas feed from sweetening unit, percent by volume.

K = (32 lb S/lb-mole)/[(100%)(385.36 dscf/lb mole)(2240 lb/long ton)]

(b) The continuous readings from the process flowmeter must be used to determine the average volumetric flow rate (Q_a) in dscf/day of the acid gas from the sweetening unit for each run.

(c) The tutwiler procedure in subdivision i or a chromatographic procedure following A.S.T.M. E-260 must be used to determine the hydrogen sulfide concentration in the acid gas feed from the sweetening unit. At least one sample per hour (at equally spaced intervals) must be taken during each four-hour run. The arithmetic mean of all samples must be the average hydrogen sulfide concentration (Y) on a dry basis for the run. By multiplying the result from the tutwiler procedure by 1.62×10^{-3}, the units gr/100 cubic feet at standard conditions are converted to volume percent.

(d) Using the information from subparagraphs a and c of paragraph 2, tables 1 and 2 must be used to determine the required initial (Z_i) and continuous (Z_c) reduction efficiencies of sulfur dioxide emissions.

(3) The owner or operator shall determine compliance with the sulfur dioxide standards in paragraph 1 or 2 of subdivision c as follows:

(a) The emission reduction efficiency (R) achieved by the sulfur recovery technology must be computed for each run using the following equation:

R = (100 S)/(S+E)

(b) The level indicators or manual soundings must be used to measure the liquid sulfur accumulation rate in the product storage tanks. Readings taken at the beginning and end of each run, the tank geometry, sulfur density at the storage temperature, and sample duration must be used to determine the sulfur production rate (S) in kilogram per hour for each run.

(c) The emission rate (E) of sulfur must be computed for each run as follows:

$E = C_o Q_{sd}/K$

where:

C_o = concentration of sulfur equivalent (SO2 + TRS), g/dscm.

Q_{sd} = volumetric flow rate of effluent gas, dscm/hr.

K = conversion factor, 1000 g/kg.

(d) The concentration (C_o) of sulfur equivalent must be the sum of the sulfur dioxide and TRS concentrations, after being converted to sulfur equivalents. For each run and each of the test methods specified in paragraph 3 of this subdivision, the sampling time must be at least four hours. Method 1 must be used to select the sampling site. The sampling point in the duct must be at the centroid of the cross-section if the area is less than five square meters [54 ft^2] or at a point no closer to the walls than one meter [39 inches] if the cross-sectional area is five square meters [54 ft^2] or more, and the centroid is more than one meter [39 inches] from the wall.

[1] Method 6 must be used to determine the sulfur dioxide concentration. Eight samples of twenty minutes each must be taken at thirty-minute intervals. The arithmetic average in milligram per dry cubic meter at standard conditions must be the concentration for the run. The concentration in milligram per dry cubic meter at standard conditions must be multiplied by 0.5 to convert the results to sulfur equivalent.

[2] Method 15 must be used to determine the TRS concentration from reduction-type devices or where the oxygen content of the effluent gas is less than one percent by volume. The sampling rate must be at least three liters/minute [0.1 ft^3/min] to ensure minimum residence time in the sample line. Sixteen samples must be taken at fifteen-minute intervals. The arithmetic average of all the samples must be the

concentration for the run. The concentration in parts per million TRS as hydrogen sulfide must be multiplied by 1.352×10^{-6} to convert the results to sulfur equivalent.

[3] Method 16A must be used to determine the TRS concentration from oxidation-type devices or where the oxygen content of the effluent gas is greater than one percent by volume. Eight samples of twenty minutes each must be taken at thirty-minute intervals. The arithmetic average must be the concentration for the run. The concentration in parts per million TRS as hydrogen sulfide must be multiplied by 1.352×10^{-6} to convert the results to sulfur equivalent.

[4] Method 2 must be used to determine the volumetric flow rate of the effluent gas. A velocity traverse must be conducted at the beginning and end of each run. The arithmetic average of the two measurements must be used to calculate the volumetric flow rate (Q_{sd}) for the run. For the determination of the effluent gas molecular weight, a single integrated sample over the four-hour period may be taken and analyzed or grab samples at one-hour intervals may be taken, analyzed, and averaged. For the moisture content, two samples of at least 0.10 dry cubic meter at standard conditions [0.35 dscf] and ten minutes must be taken at the beginning of the four-hour run and near the end of the time period. The arithmetic average of the two runs must be the moisture content for the run.

(4) To comply with paragraph 4 of subdivision g, the owner or operator shall obtain the information required by using the monitoring devices in paragraph 2 of this subdivision.

~~f. Performance test methods.~~

~~(1) For the purpose of determining compliance with paragraph 1 or 2 of subdivision c, the following reference methods must be used:~~

~~(a) Method 1 for velocity traverse points selection.~~

~~(b) Method 2 for determination of stack gas velocity and calculation of the volumetric flow rate.~~

~~(c) Method 3 for determination of stack gas molecular weight.~~

~~(d) Method 4 for determination of the stack gas moisture content.~~

~~(e) Method 6 for determination of sulfur dioxide concentration.~~

~~(f) Method 15 for determination of the total reduced sulfur concentration from reduction-type devices or where the oxygen content of the stack gas is less than one percent by volume.~~

~~(g) Method 16A for determination of the total reduced sulfur concentration from oxidation-type devices or where the oxygen content of the stack gas is greater than one percent by volume.~~

~~(h) The tutwiler procedure in subdivision i or a chromatographic procedure following A.S.T.M. E-260, which is incorporated by reference, for determination of the hydrogen sulfide concentration in the acid gas feed from the sweetening unit.~~

~~(2) The sampling location for methods 3, 4, 6, 15, and 16A must be the same as that used for velocity measurements by method 2. The sampling point in the duct must be at the centroid of the cross section if the area is less than five m^2 (54 ft^2) or at a point no closer to the walls than one meter (39 inches) if the cross-sectional area is five m^2 (54~~

~~ft^2) or more, and the centroid is more than one meter from the wall. For methods 3, 4, 6, and 16A, the sample must be extracted at a rate proportional to the gas velocity at the sampling point. For Method 15, the minimum sampling rate must be three liters per minute (0.1 ft^3/minute) to ensure minimum residence time in the sample line.~~

~~(3) For method 6 and 16A the minimum sampling time for each run must be four hours. Either one sample or a number of separate samples may be collected for each run so long as the total sample time is four hours. Where more than one sample is collected per run, the average result for the run is calculated by:~~

~~$C_s = \sum_{i=1}^{n} (C_{si}) \left(\frac{t_{si}}{T}\right)$~~

~~where:~~

~~C_s = time-weighted average SO_2 or TRS concentration for the run, (mg/dscm or ppmv, dry)~~

~~n = number of samples collected during the run~~

~~C_{si} = SO_2 or TRS concentration for sample i, (mg/dscm or ppmv, dry)~~

~~t_{si} = sampling time for sample i, (minutes)~~

~~T = total sampling time for all samples in the run (minutes)~~

~~(4) For method 15, each run shall consist of sixteen samples taken over a minimum of four hours. The equivalent sulfur dioxide concentration for each run must be calculated as the arithmetic average of the sulfur dioxide equivalent concentration for each sample.~~

~~(5) For method 2, a velocity traverse must be conducted at the beginning and end of each run. The arithmetic average of the two measurements must be used to calculate the volumetric flow rate for each run.~~

~~(6) For method 3, a single sample may be integrated over the four-hour run interval and~~

~~analysis, or grab samples at one-hour intervals may be collected, analyzed, and averaged to determine the stack gas composition.~~

~~(7) For method 4, each run shall consist of two samples, one collected at the beginning of the four-hour test period, and one near the end of the period. For each sample the minimum sample volume must be 0.1 dscm (0.35 dscf) and the minimum sample time must be ten minutes.~~

f. [Reserved]

g. Monitoring of emissions and operations.

(1~~)~~ The owner or operator subject to the provisions of paragraph 1 or 2 of subdivision c shall install, calibrate, maintain, and operate monitoring devices or perform measurements to determine the following operations information on a daily basis:

(a~~)~~ The accumulation of sulfur product over each twenty-four-hour period: The monitoring method may incorporate the use of an instrument to measure and record the liquid sulfur production rate, or may be a procedure for measuring and recording the sulfur liquid levels in the storage tanks with a level indicator or by manual soundings, with subsequent calculation of the sulfur production rate based on the tank geometry, stored sulfur density, and elapsed time between readings. The method shall be designed to be accurate within ±2 percent of the twenty-four-hour sulfur accumulation.

(b) The hydrogen sulfide concentration in the acid gas from the sweetening unit for each twenty-four-hour period: At least one sample per twenty-four-hour period must be collected and analyzed using the method specified in subparagraph ~~h~~a of paragraph ~~1~~2 of subdivision ~~f~~e. The department may require the owner or operator to demonstrate that the hydrogen sulfide concentration obtained from one or more samples over a twenty-four-hour period is within ±20 percent of the average of twelve samples collected at equally spaced intervals during the twenty-four-hour period. In instances where the hydrogen sulfide concentration of a single sample is not within ±20 percent of the average of the twelve equally spaced samples, the department may require a more frequent sampling schedule.

(c) The average acid gas flow rate from the sweetening unit: The owner or operator shall install and operate a monitoring device to continuously measure the flow rate of acid gas. The monitoring device reading must be recorded at least once per hour during each 24-hour period. The average acid gas flow rate must be computed from the individual readings.

(d) The sulfur feed rate (X): For each twenty-four-hour period, X must be computed using the equation in subparagraph ~~e~~c of paragraph ~~1~~2 of subdivision e.

(e) The required sulfur dioxide emission reduction efficiency for the twenty-four-hour period: The sulfur feed rate and the hydrogen sulfide concentration in the acid gas for the twenty-four-hour period as applicable, must be used to determine the required reduction efficiency in accordance with the provisions of paragraph 2 of subdivision c.

(2) Where compliance is achieved through the use of an oxidation control system or a reduction control system followed by a continually operated incineration device, the owner or operator shall install, calibrate, maintain, and operate monitoring devices and continuous emission monitors as follows:

(a) A continuous monitoring system to measure the total sulfur emission rate (E) of sulfur dioxide in the gases discharged to the atmosphere. The sulfur dioxide emission rate must be expressed in terms of equivalent sulfur mass flow rates (kg/hr). The span of this monitoring system must be set so that the equivalent emission limit of paragraph 2 of subdivision c will be between thirty and seventy percent of the measurement range of the instrument system.

(b) Except as provided in subparagraph c: A monitoring device to measure the temperature of the gas leaving the combustion zone of the incinerator, if compliance with paragraph 1 of subdivision c is achieved through the use of an oxidation control system or a reduction control system followed by a continually operated incineration device. The monitoring device must be certified by the manufacturer to be accurate to within ±1 percent of the temperature being measured.

When performance tests are conducted under the provisions of subsection 7 of section 33-15-12-01 to demonstrate compliance with the standards under subdivision c , the temperature of the gas leaving the incinerator combustion zone shall be determined using the monitoring device. If the volumetric ratio of sulfur dioxide to sulfur dioxide plus total reduced sulfur (expressed as SO_2) in the gas leaving the incinerator is ≥ 0.98, then temperature monitoring may be used to demonstrate that sulfur dioxide emission monitoring is sufficient to determine total sulfur emissions. At all times during the operation of the facility, the owner or operator shall maintain the average temperature of the gas leaving the combustion zone of the incinerator at or above the appropriate level determined during the most recent performance test to ensure the sulfur compound oxidation criteria are met. Operation at lower average temperatures may be considered by the department to be unacceptable operation and maintenance of the affected facility. The owner or operator may request that the minimum incinerator temperature be reestablished by conducting new performance tests under subsection 7 of section 33-15-12-01.

(c) Upon promulgation of a performance specification of continuous monitoring systems for total reduced sulfur compounds at sulfur recovery plants, the owner or operator may, as an alternative to subparagraph b of this paragraph, install, calibrate, maintain, and operate a continuous emission monitoring system for total reduced sulfur compounds as required in paragraph 4 of this subdivision in addition to a sulfur dioxide emission monitoring system. The sum of the equivalent sulfur mass emission rates from the two monitoring systems must be used to compute the total sulfur emission rate (E).

(3) Where compliance is achieved through the use of a reduction control system not followed by a continually operated incineration device, the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system to measure the emission rate of reduced sulfur compounds as sulfur dioxide equivalent in the gases discharged to the atmosphere. The sulfur dioxide equivalent compound emission rate shall be expressed in terms of equivalent sulfur mass flow rates (kg/hr). The span of this monitoring system must be set so that the equivalent emission limit of paragraph 2 of subdivision c will be between thirty and seventy percent of the measurement range of the system. This requirement becomes effective upon promulgation of a performance specification for continuous monitoring systems for total reduced sulfur compounds at sulfur recovery plants.

(4) For those sources required to comply with paragraph 2 or 3 of this subdivision, the average sulfur emission reduction efficiency achieved (R) must be calculated for each twenty-four-hour clock interval. The twenty-four-hour interval may begin and end at any selected clock time, but must be consistent. The twenty-four-hour average reduction efficiency (R) must be computed based on the twenty-four-hour average sulfur production rate (S) and sulfur emission rate (E), using the equation in subparagraph a of paragraph ~~2~~3 of subdivision ~~d~~e.

(a) Data obtained from the sulfur production rate monitoring device specified in paragraph 1 of this subdivision shall be used to determine S.

(b) Data obtained from the sulfur emission rate monitoring systems specified in paragraph 2 or 3 of this subdivision must be used to calculate a twenty-four-hour average for the sulfur emission rate (E). The monitoring system must provide at least one data point in each successive fifteen-minute interval. At least two data points must be used to calculate each one-hour average. A minimum of eighteen 1-hour averages must be used to compute each twenty-four-hour average.

(5) In lieu of complying with paragraph 2 or 3 of this subdivision, those sources with a design capacity of less than one hundred fifty LT/D of hydrogen sulfide expressed as sulfur may calculate the sulfur emission reduction efficiency achieved for each twenty-four-hour period by:

$$R = \frac{0.0236\ S}{X} \text{ (100 percent)}$$

where:

R = the sulfur dioxide removal efficiency achieved during the twenty-four-hour period, percent;

S = the sulfur production rate during the twenty-four-hour period, kg/hr;

X = the sulfur feed rate in the acid gas, LT/D; and 0.0236 = conversion factor, LT/D per kg/hr.

(6) The monitoring devices required in subparagraphs a and c of paragraph 2, and paragraph 3 of subdivision g must be calibrated at least annually according to the manufacturer's specifications, as required by subdivision b of subsection 11 of section 33-15-12-01.

(7) The continuous emission monitoring systems required in subparagraphs a and c of paragraph 2, and paragraph 3 of subdivision g shall be subject to the emission monitoring requirements of subsection 11 of section 33-15-12-01. For conducting the continuous emission monitoring system performance evaluation required by subdivision c of subsection 11 of section 33-15-12-01, performance specification 2 shall apply, and method 6 must be used for systems required by paragraph 2 of subdivision g.

h. Recordkeeping and reporting requirements.

(1) Records of the calculations and measurements required in paragraphs 1 and 2 of subdivision c and paragraphs 1 through 7 of subdivision g must be retained for at least two years following the date of the measurements by owners or operators subject to this subsection. This requirement is included under subdivision d of subsection 6 of section 33-15-12-01.

(2) Each owner or operator shall submit a written report of excess emissions to the department semiannually. For the purpose of these reports, excess emissions are defined as:

(a) Any twenty-four-hour period (at consistent intervals) during which the average sulfur emission reduction efficiency (R) is less than the minimum required efficiency (Z).

(b) For any affected facility electing to comply with the provisions of subparagraph b of paragraph 2 of subdivision g, any twenty-four-hour period during which the average temperature of the gases leaving the combustion zone of an incinerator is less than the appropriate operating temperature as determined during the most recent performance test in accordance with the provisions of subparagraph b of paragraph 2 of subdivision g. Each twenty-four-hour period must consist of at least ninety-six temperature measurements equally spaced over the twenty-four hours.

(3) To certify that a facility is exempt from the control requirements of these standards, each owner or operator of a facility with a design capacity less that two LT/D of hydrogen sulfide in the acid gas (expressed as sulfur) shall keep, for the life of the facility, an analysis demonstrating that the facility's design capacity is less than two LT/D of hydrogen sulfide expressed as sulfur.

(4) Each owner or operator who elects to comply with paragraph 5 of subdivision g shall keep, for the life of the facility, a record

demonstrating that the facility's design capacity is less than one hundred fifty LT/D of hydrogen sulfide expressed as sulfur.

i. Optional procedure for measuring hydrogen sulfide in acid gas - tutwiler procedure. (Use procedure outlined in 40 CFR Part 60, subpart LLL, Standards of performance for onshore natural gas processing; SO_2 emissions, section 60.648.)

24. **Standards of performance for equipment leaks of volatile organic compounds from onshore natural gas processing plants.**

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities in onshore natural gas processing plants.

(a) A compressor in volatile organic compounds service or in wet gas service is an affected facility.

(b) The group of all equipment except compressors (defined in subdivision b) within a process unit is an affected facility.

(2) Any affected facility under paragraph 1 of this subdivision that commences construction, reconstruction, or modification after January 20, 1984, is subject to the requirements of this subsection.

(3) Addition or replacement of equipment (defined in subdivision b) for the purpose of process improvement that is accomplished without a capital expenditure may not by itself be considered a modification under this subsection.

(4) Facilities covered by subsection 25 or 26 are excluded from this subsection.

(5) A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subsection if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and subsection 2 of section 33-15-12-01.

(1) "Equipment" means each pump, pressure relief device, open-ended valve or line, valve, compressor, and flange or other connector that is in volatile organic compounds service or in wet gas service and any device or system required by this subsection.

(2) "Field gas" means feed stock gas, entering the natural gas processing plant.

(3) "In light liquid service" means that the piece of equipment contains a liquid that meets the conditions specified in paragraph 5 of subdivision p of subsection 25 or subparagraph b of paragraph 7 of subdivision d of this subsection.

(4) "In wet gas service" means that a piece of equipment contains or contacts the field gas before the extraction step in the process.

(5) "Natural gas liquids" means the hydrocarbons, such as ethane, propane, butane, and pentane, that are extracted from field gas.

(6) "Natural gas processing plant" (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both.

(7) "Nonfractionating plant" means any gas plant that does not fractionate mixed natural gas liquids into natural gas products.

(8) "Onshore" means all facilities except those that are located in the territorial seas or on the outer continental shelf.

(9) "Process unit" means equipment assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or other operations associated with the processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the products.

(10) "Reciprocating compressor" means a piece of equipment that increases the pressure of a process gas by positive displacement, employing linear movement of the drive shaft.

c. Standards.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of paragraphs 1, 2, and 4 of subdivision c of subsection 25 and subdivisions d through l of subsection 25, except as provided in subdivision d of this subsection, as soon as practicable, but no later than one hundred eighty days after initial startup.

(2) An owner or operator may elect to comply with the requirements of subdivisions m and n of subsection 25.

(3) An owner or operator may apply to the department for permission to use an alternative means of emission limitation that achieves a reduction in emissions of volatile organic compounds at least equivalent to that achieved by the controls required in this subsection. In doing so, the owner or operator shall comply with the requirements of subdivision e of this subsection.

(4) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivision p of subsection 25, except as provided in paragraph 5 of subdivision d of this subsection.

(5) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivisions q and r of subsection 25, except as provided in subdivisions d, f, and g of this subsection.

(6) An owner or operator shall use the following provision instead of paragraph 4 of subdivision p of subsection 25 Each piece of equipment is presumed to be in volatile organic compounds service or in wet gas service unless an owner or operator demonstrates that the piece of equipment is not in volatile organic compounds service or in wet gas service. For a piece of equipment to be considered not in volatile organic compounds service, it must be determined that

the percent volatile organic compounds content can be reasonably expected never to exceed ten percent by weight. For a piece of equipment to be considered in wet gas service, it must be determined that it contains or contacts the field gas before the extraction step in the process. For purposes of determining the percent volatile organic compounds content of the process fluid that is contained in or contacts a piece of equipment, procedures that conform to the methods described in A.S.T.M. methods E169, E168, or E260 must be used.

d. Exceptions.

(1) Each owner or operator subject to the provisions of this subsection may comply with the following exceptions to the provisions of subsection 25.

(2) Each pressure relief device in gas/vapor service may be monitored quarterly and within five days after each pressure release to detect leaks by the methods specified in paragraph 2 of subdivision p of subsection 25 except as provided in paragraph 3 of subdivision c, subparagraph c of paragraph 2 of this subdivision, and paragraphs 1 through 3 of subdivision f of subsection 25.

(a) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(b) When a leak is detected, it must be repaired as soon as practicable, but no later than fifteen calendar days after it is detected, except as provided in subdivision k of subsection 25. A first attempt at repair must be made no later than five calendar days after each leak is detected.

(c) Any pressure relief device that is located in a nonfractionating plant that is monitored only by nonplant personnel may be monitored after a pressure release the next time the monitoring personnel are onsite, instead of within five days as specified in paragraph 2 of this subdivision and paragraph 2 of subdivision f of subsection 25. No pressure relief device described in subparagraph c of paragraph 2 of this subdivision shall be allowed to operate for more than thirty days after a pressure release without monitoring.

(3) Sampling connection systems are exempt from the requirements of subdivision g of subsection 25.

(4) Pumps in light liquid service, valves in gas/vapor and light liquid service, and pressure relief devices in gas/vapor service that are located at a nonfractionating plant that does not have the design capacity to process two hundred eighty-three thousand standard cubic meters per day (scmd) [10 million standard cubic feet per day (scfd)] or more of field gas are exempt from the routine monitoring requirements of paragraph 1 of subdivision d of subsection 25, paragraph 1 of subdivision i of subsection 25, and paragraph 2 of this subdivision.

(5) Reciprocating compressors in wet gas service are exempt from the compressor control requirements of subdivision e of subsection 25.

(6) Flares used to comply with this subsection shall comply with the requirements of subsection 14 of section 33-15-12-01.

(7) An owner or operator may use the following provisions instead of paragraph 5 of subdivision p of subsection 25:

(a) Equipment is in heavy liquid service if the weight percent evaporated is ten percent or less at one hundred fifty degrees Celsius [302 degrees Fahrenheit] as determined by A.S.T.M. method D86.

(b) Equipment is in light liquid service if the weight percent evaporated is greater than 10 percent at one hundred fifty degrees Celsius [302 degrees Fahrenheit] as determined by A.S.T.M. method D86.

e. Alternative means of emission limitation.

(1) If, in the department's and administrator's judgment, an alternative means of emission limitation will achieve a reduction in volatile organic compounds emissions at least equivalent to the reduction in volatile

organic compounds emissions achieved under any design, equipment, work practice, or operational standard, the department and administrator will publish a notice permitting the use of that alternative means for the purpose of compliance with that standard. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

(2) Any notice under paragraph 1 of this subdivision shall be published only after notice and an opportunity for a public hearing.

(3) The department and administrator will consider applications under this subdivision from either owners or operators of affected facilities, or manufacturers of control equipment.

(4) The department and administrator will treat applications under this subdivision according to the following criteria, except in cases where it concludes that other criteria are appropriate:

(a) The applicant must collect, verify, and submit test data, covering a period of at least twelve months, necessary to support the finding in paragraph 1 of this subdivision.

(b) If the applicant is an owner or operator of an affected facility, the applicant must commit in writing to operate and maintain the alternative means so as to achieve a reduction in volatile organic compounds emissions at least equivalent to the reduction in volatile organic compounds emissions achieved under the design, equipment, work practice, or operational standard.

f. Recordkeeping requirements.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of paragraphs 2 and 3 of this subdivision in addition to the requirements of subdivision q of subsection 25.

(2) The following recordkeeping requirements apply to pressure relief devices subject to the requirements of paragraph 2 of subdivision d of this subsection.

(a) When each leak is detected as specified in subparagraph a of paragraph 2 of subdivision d of this subsection, a weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment. The identification on the pressure relief device may be removed after it has been repaired.

(b) When each leak is detected as specified in subparagraph a of paragraph 2 of subdivision d of this subsection, the following information must be recorded in a log and must be kept for two years in a readily accessible location:

[1] The instrument and operator identification numbers and the equipment identification number.

[2] The date the leak was detected and the dates of each attempt to repair the leak.

[3] Repair methods applied in each attempt to repair the leak.

[4] "Above ten thousand parts per million" if the maximum instrument reading measured by the methods specified in paragraph 1 after each repair attempt is ten thousand parts per million or greater.

[5] "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

[6] The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

[7] The expected date of successful repair of the leak if a leak is not repaired within fifteen days.

[8] Dates of process unit shutdowns that occur while the equipment is unrepaired.

[9] The date of successful repair of the leak.

[10] A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of paragraph 1 of subdivision f of subsection 25. The designation of equipment subject to the provisions of paragraph 1 of subdivision f of subsection 25 must be signed by the owner or operator.

(c) An owner or operator shall comply with the following requirement in addition to the requirement of paragraph 10 of subdivision q of subsection 25: Information and data used to demonstrate that a reciprocating compressor is in wet gas service to apply for the exemption in paragraph 5 of subdivision d of this subsection must be recorded in a log that is kept in a readily accessible location.

g. Reporting requirements.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of paragraphs 2 and 3 of this subdivision in addition to the requirements of subdivision r of subsection 25.

(2) An owner or operator shall include the following information in the initial semiannual report in addition to the information required in subparagraphs a through d of paragraph 2 of subdivision r of subsection 25: Number of pressure relief devices subject to the requirements of paragraph 2 of subdivision d of this subsection except for those pressure relief devices designated for no detectable emissions under the provisions of paragraph 1 of subdivision f of subsection 25 and those pressure relief devices complying with paragraph 3 of subdivision f of subsection 25.

(3) An owner or operator shall include the following information in all semiannual reports in addition to the information required in items 1 through 6 of subparagraph b of paragraph 3 of subdivision r of subsection 25:

(a) Number of pressure relief devices for which leaks were detected as required in subparagraph a of paragraph 2 of subdivision d of this subsection; and

(b) Number of pressure relief devices for which leaks were not repaired as required in subparagraph b of paragraph 2 of subdivision d of this subsection.

25. Standards of performance for equipment leaks of volatile organic compounds in the synthetic organic chemicals manufacturing industry.

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities in the synthetic organic chemicals manufacturing industry. The group of all equipment (defined in subdivision b) within a process unit is an affected facility.

(2) Any affected facility under paragraph 1 of this subdivision that commences construction or modification after January 5, 1981, shall be subject to the requirements of this subsection.

(3) Addition or replacement of equipment for the purpose of process improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under this subsection.

(4) If an owner or operator applies for one or more of the exemptions in this paragraph, then the owner or operator shall maintain records as required in paragraph 9 of subdivision q.

(a) Any affected facility that has the design capacity to produce less than one thousand ~~milligrams~~ megagrams per year is exempt from subdivision c through subdivision l.

(b) If an affected facility produces heavy liquid chemicals only from heavy liquid feed or raw materials, then it is exempt from subdivision c through subdivision l.

(c) Any affected facility that produces beverage alcohol is exempt from subdivision c through subdivision l.

(d) Any affected facility that has no equipment in volatile organic compounds service is exempt from subdivision c through subdivision l.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and subsection 2 of section 33-15-12-01.

(1) "Capital expenditure" means, in addition to the definition in subsection 2 of section 33-15-12-01, an expenditure for a physical or operational change to an existing facility that:

(a) Exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation: $P = R \times A$, where:

[1] The adjusted annual asset guideline repair allowance, A, is the product of the percent of the replacement cost, Y, and the applicable basic annual asset guideline repair allowance, B, as reflected by the following equation:

$$A = Y \times (\frac{B}{100})$$

[2] The percent Y is determined from the following equation: $Y = 1.0 - 0.575 \log X$, where X is 1982 minus the year of construction; and

[3] The applicable basic annual asset guideline repair allowance, B, is selected from the following table consistent with the applicable subsection:

TABLE FOR DETERMINING APPLICABLE FOR B

Subsection applicable to facility	Value of B to be used in equation
~~26~~ 24	4.5
~~27~~ 25	12.5
~~28~~ 26	7.0

(2) "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.

(3) "Connector" means flanged, screwed welded, or other joined fittings used to connect two pipe lines or a pipeline and a piece of process equipment.

(4) "Control device" means an enclosed combustion device, vapor recovery system, or flare.

(5) "Distance piece" means an open or enclosed casing through which the piston rod travels, separating the compressor cylinder from the crankcase.

(6) "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.

(7) "Equipment" means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in volatile organic compounds service and any devices or systems required by this subsection.

(8) "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.

(9) "In gas/vapor service" means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions.

(10) "In heavy liquid service" means that the piece of equipment is not in gas/vapor service or in light liquid service.

(11) "In light liquid service" means that the piece of equipment contains a liquid that meets the conditions specified in paragraph 5 of subdivision p.

(12) "In situ sampling systems" means nonextractive samplers or in-line samplers.

(13) "In vacuum service" means that equipment is operating at an internal pressure which is at least five kilopascals (kPa) below ambient pressure.

(14) "In volatile organic compounds service" means that the piece of equipment contains or contacts a process fluid that is at least ten percent volatile organic compounds by weight. (The provisions of paragraph 4 of subdivision p specify how to determine that a piece of equipment is not in volatile organic compounds service).

(15) "Liquids dripping" means any visible leakage from the seal, including spraying, misting, clouding, and ice formation.

(16) "Open-ended valve or line" means any valve, except safety relief 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.

(17) "Pressure release" means the emission of materials resulting from system pressure being greater than set pressure of the pressure of the pressure relief device.

(18) "Process improvement" means routine changes made for safety and occupational health requirements, for energy savings, for better utility, for ease of maintenance and operation, for correction of design deficiencies, for bottleneck removal, for changing product requirements, or for environmental control.

(19) "Process unit" means components assembled to produce, as intermediate or final products, one or more of the chemicals referenced in subdivision t of this subsection. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

(20) "Process unit shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than twenty-four hours is not a process unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.

(21) "Quarter" means a three-month period; the first quarter concludes on the last day of the last full month during the one hundred eighty days following initial startup.

(22) "Repaired" means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading of ten thousand parts per million or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.

(23) "Replacement cost" means the capital needed to purchase all the depreciable components in a facility.

(24) "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.

(25) "Synthetic organic chemicals manufacturing industry" means the industry that produces, as intermediates or final products, one or more of the chemicals referenced in subdivision t.

(26) "Volatile organic compounds" or "VOC" means, for the purposes of this subsection, any reactive organic compounds as defined in subsection 2 of section 33-15-12-01.

c. Standards: general.

(1) Each owner or operator subject to the provisions of this subsection shall demonstrate compliance with the requirements of subdivision c to subdivision l for all equipment within one hundred eighty days of initial startup.

(2) Compliance with subdivision c to subdivision l will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in subdivision p.

(3) An owner or operator may request a determination of equivalence of a means of emission limitation to the requirements of subdivision d, e, g, h, i, j, or l as provided in subdivision o. If the department and administrator make a determination that a means of emission limitation is at least equivalent to the requirements of subdivision d, e, g, h, i, j, or l, an owner or operator shall comply with the requirements of that determination.

(4) Equipment that is in vacuum service is excluded from the requirements of subdivision d to subdivision l if it is identified as required in subparagraph g of paragraph 5 of subdivision q.

d. Standards: pumps in light liquid service.

(1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph 2 of subdivision p, except as provided in paragraph 3 of subdivision c and paragraphs 4, 5, and 6 of this subdivision. 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) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected. If there are indications of liquids dripping from the pump seal, a leak is detected.

(3) 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 subdivision k. A first attempt at repair 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 paragraph 1, provided the following requirements are met:

(a) Each dual mechanical seal system is:

   [1] Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

   [2] Equipment with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device that complies with the requirements of subdivision 1; or

   [3] Equipped with a system that purges the barrier fluid into a process stream with zero volatile organic compounds emissions to the atmosphere.

(b) The barrier fluid system is in heavy liquid service or is not in volatile organic compounds service.

(c) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(d) Each pump is checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.

(e) Each sensor, as described in subparagraph c of paragraph 4, is checked daily or is equipped with an audible alarm, and the owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) 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 subparagraph e of paragraph 4, a leak is detected.

   [1] 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 subdivision k.

[2] A first attempt at repair shall be made no later than five calendar days after each leak is detected.

(5) Any pump that is designated, as described in subparagraphs a and b of paragraph 5 of subdivision q, for no detectable emission, as indicated by an instrument reading of less than five hundred parts per million above background, is exempt from the requirements of paragraphs 1, 3, and 4 if the pump:

(a) Has no externally actuated shaft penetrating the pump housing;

(b) Is demonstrated 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 methods specified in paragraph 3 of subdivision p; and

(c) Is tested for compliance with subparagraph b of paragraph 5 initially upon designation, annually, and at other times 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 subdivision l, it is exempt from paragraphs 1 through 5.

e. Compressors.

(1) Each compressor must be equipped with a seal system that includes a barrier fluid system and that prevents leakage of volatile organic compounds to the atmosphere, except as provided in paragraph 3 of subdivision c and paragraphs 8 and 9 of this subdivision.

(2) Each compressor seal system as required in paragraph 1 must be:

(a) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or

(b) Equipped with a barrier fluid system that is connected by a closed vent system to a control device that complies with the requirements of subdivision 1.

(c) Equipped with a system that purges the barrier fluid into a process stream with zero volatile organic compounds emissions to the atmosphere.

(3) The barrier fluid system shall be in heavy liquid service or shall not be in volatile organic compounds service.

(4) Each barrier fluid system, as described in paragraph 1, must be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(5) Each sensor, as required in paragraph 4, must be checked daily or must be equipped with an audible alarm. The owner or operator shall determine, based on design considerations 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 system, or both, based on the criterion determined under paragraph 5, a leak is detected.

(7) 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 subdivision k. A first attempt at repair must be made no later than five calendar days after each leak is detected.

(8) A compressor is exempt from the requirements of paragraphs 1 and 2, if it is equipped with a closed vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of subdivision 1, except as provided in paragraph 9.

(9) Any compressor that is designated, as described in subparagraphs a and b of paragraph 5 of subdivision q, 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 paragraphs 1 through 8 if the compressor:

(a) Is demonstrated 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 methods specified in paragraph 3 of subdivision p; and

(b) Is tested for compliance with subparagraph a of paragraph 9 initially upon designation, annually, and at other times requested by the department.

(10) Any existing reciprocating compressor in a process unit which becomes an affected facility under provisions of subsection 12 or 13 of section 33-15-12-01 is exempt from paragraphs 1, 2, 3, 4, 5, and 8, provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs 1, 2, 3, 4, 5, and 8.

f. Pressure relief devices in gas/vapor service.

(1) Except during pressure releases, each pressure relief device in gas/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 determined by the methods specified in paragraph 3 of subdivision p.

(2) 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, but no later than five calendar days after the pressure release, except as provided in subdivision k. No later than five calendar days after the pressure release, the pressure relief device must be monitored to confirm the conditions of no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, by the methods specified in paragraph 3 of subdivision p.

(3) Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device, as described in subdivision 1, is exempted from the requirements of paragraphs 1 and 2.

g. Standards: sampling connection systems.

(1) Each sampling connection system must be equipped with a closed purge system or closed vent system, except as provided in paragraph 3 of subdivision c.

(2) Each closed purge system or closed vent system as required in paragraph 1 must:

(a) Return the purged process fluid directly to the process line with zero volatile organic compounds emissions to the atmosphere;

(b) Collect and recycle the purged process fluid with zero volatile organic compounds emissions to the atmosphere; or

(c) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of subdivision 1.

(3) In situ sampling systems are exempt from paragraphs 1 and 2.

h. Standards: open-ended valves or lines.

(1) Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraph 3 of subdivision c. The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid 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 process fluid 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 paragraph 1 at all other times.

i. Standards: valves in gas/vapor service in light liquid service.

(1) Each valve must be monitored monthly to detect leaks by the methods specified in paragraph 2 of subdivision p and must comply with paragraphs 2 through 5, except as provided in paragraphs 6, 7, and 8, subdivisions m, n, and paragraph 3 of subdivision c.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) Any valve for which a leak is not detected for two successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected. If a leak is detected, the valve must be monitored monthly until a leak is not detected for two successive months.

(4) 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 subdivision k. 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 practicable:

(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 subparagraph b of paragraph 5 of subdivision q, 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 paragraph 1 if the valve:

(a) Has no external actuating mechanism in contact with the process fluid;

(b) Is operated with emissions less than five hundred parts per million above background as determined by the method specified in paragraph 3 of subdivision p; and

(c) Is tested for compliance with subparagraph b of paragraph 6 initially upon designation, annually, and at other times requested by the department.

(7) Any valve that is designated, as described in subparagraph a of paragraph 6 of subdivision q, as an unsafe-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrated that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph 1; and

(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 subparagraph b of paragraph 6 of subdivision q, as a difficult-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than two meters [6.56 feet] above a support surface;

(b) The process unit within which the valve is located either becomes an affected facility through subsection 12 or 13 of section 33-15-12-01 or the owner or operator designates less than three percent of the total number of valves as difficult to monitor; and

(c) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

j. 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 shall be monitored within five days by the method specified in paragraph 2 of subdivision p 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) 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 subdivision k.

(4) The 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 best practices described under paragraph 5 of subdivision i.

k. Standards: delay of repair.

(1) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

(2) Delay of repair of equipment will be allowed for equipment which is isolated from the process and which does not remain in volatile organic compounds service.

(3) Delay of repair for valves will be allowed if:

(a) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair; and

(b) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with subdivision 1.

(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; and

(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 process unit shutdown will be allowed for a valve, if valve assembly replacement is necessary during the process 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 process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown.

l. Standards: closed vent systems and control devices.

(1) Owners or operators of closed vent systems and control devices used to comply with provisions of this subsection shall comply with the provisions of this subdivision.

(2) Vapor recovery system (for example, condensers and absorbers) shall be designed and operated to recover the volatile organic compounds emissions vented to them with an efficiency of ninety-five percent or greater.

(3) Enclosed combustion devices shall be designed and operated to reduce the volatile organic compounds emissions vented to them with an efficiency of ninety-five percent or greater, or to provide a minimum residence time of 0.75 seconds at a minimum temperature of eight hundred sixteen degrees Celsius [1501 degrees Fahrenheit].

(4) Flares used to comply with this subsection shall comply with the requirements of subsection 14 of section 33-15-12-01.

(5) Owners or operators of control devices used to comply with the provisions of this subsection shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs.

(6) Closed vent systems must be designed and operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background and visual inspections, as determined by the methods specified in paragraph 3 of subdivision p. Closed vent systems must be monitored to determine compliance with this subdivision initially in accordance with subsection 7 of section 33-15-12-01, annually, and at other times requested by the department.

(7) Closed vent systems and control devices used to comply with provisions of this subsection must be operated at all times when emissions may be vented to them.

m. Alternative standards for valves - allowable percentage of valves leaking.

(1) An owner or operator may elect to comply with an allowable percentage of valves leaking of equal to or less than two percent.

(2) The following requirements must be met if an owner or operator wishes to comply with an allowable percentage of valves leaking:

(a) An owner or operator must notify the department that the owner or operator has elected to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in paragraph 2 of subdivision r.

(b) A performance test, as specified in paragraph 3 of this subdivision, 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 paragraphs 4 and 5 of subdivision i.

(3) Performance tests must be conducted in the following manner:

(a) All valves in gas/vapor and light liquid service within the affected facility must be monitored within one week by the methods specified in paragraph 2 of subdivision p.

(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 for which leaks are detected by the number of valves in gas/vapor and light liquid service within the affected facility.

(4) Owners and operators who elect to comply with this alternative standard may not have an affected facility with a leak percentage greater than two percent.

n. Alternative standards for valves - skip period leak detection and repair.

(1) An owner or operator may elect to comply with one of the alternative work practices specified in subparagraphs a and b of paragraph 2 of this subdivision. An owner or operator must notify the department before implementing one of the alternative work practices, as specified in paragraph 2 of subdivision r.

(2) An owner or operator shall comply initially with the requirements for valves in gas/vapor service and valves in light liquid service, as described in subdivision i.

(a) After two consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than two, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in gas/vapor and in light liquid service.

(b) After five consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than two, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in gas/vapor and in light liquid service.

(c) If the percent of valves leaking is greater than two, the owner or operator shall comply with the requirements as described in subdivision i but can again elect to use this subdivision.

(d) The percent of valves leaking must be determined by dividing the sum of valves found leaking during current monitoring and valves for which repair has been delayed by the total number of valves subject to the requirements of this subdivision.

(e) An owner or operator must keep a record of the percent of valves found leaking during each leak detection period.

o. Equivalence of means of emission limitation.

(1) Each owner or operator subject to the provisions of this subsection may apply to the department and administrator for determination of equivalence for any means of emission limitation that achieves a reduction in emissions of volatile organic compounds at least equivalent to the reduction in emissions of volatile organic compounds achieved by the controls required in this subsection.

(2) Determination of equivalence to the equipment, design, and operational requirements of this subsection will be evaluated by the following guidelines:

(a) Each owner or operator applying for an equivalence determination shall be responsible for collecting and verifying test data to demonstrate equivalence of means of emission limitation.

(b) The department and administrator will compare test data for the means of emission limitation to test data for the equipment, design, and operational requirements.

(c) The department and administrator may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.

(3) Determination of equivalence to the required work practices in this subsection will be evaluated by the following guidelines:

   (a) Each owner or operator applying for a determination of equivalence shall be responsible for collecting and verifying test data to demonstrate equivalence of an equivalent means of emission limitation.

   (b) For each affected facility for which a determination of equivalence is requested, the emission reduction achieved by the required work practice must be demonstrated.

   (c) For each affected facility, for which a determination of equivalence is requested, the emission reduction achieved by the equivalent means of emission limitation must be demonstrated.

   (d) Each owner or operator applying for a determination of equivalence shall commit in writing to work practices that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practice.

   (e) The department and administrator will compare the demonstrated emission reduction for the equivalent means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in subparagraph d of paragraph 3.

   (f) The department may condition the approval of equivalence on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practice.

(4) An owner or operator may offer a unique approach to demonstrate the equivalence of any equivalent means of emission limitation.

(5) After a request for determination of equivalence is received, the department and administrator will publish notices and provide the opportunity for public hearing if the department and administrator judges that the request may be approved.

(a) After notice and opportunity for public hearing, the department and administrator will determine the equivalence of a means of emission limitation and will publish the determination.

(b) Any equivalent means of emission limitation approved under this subdivision shall constitute a required work practice, equipment, design, or operational standard within the meaning of section 111(h)(1) of the Clean Air Act.

(6) Manufacturers of equipment used to control equipment leaks of volatile organic compounds may apply to the department and administrator for determination of equivalence for any equivalent means of emission limitation that achieves a reduction in emissions of volatile organic compounds achieved by the equipment, design, and operational requirements of this subsection. The department and administrator will make an equivalence determination according to the provisions of paragraphs 2, 3, 4, and 5.

p. Test methods and procedures.

~~(1) Each owner or operator subject to the provisions of this subsection shall comply with the test method and procedure requirements provided in this subdivision.~~

~~(2) Monitoring, as required in subdivisions c through o, must comply with the following requirements:~~

~~(a) Monitoring must comply with reference method 21.~~

~~(b) The detection instrument shall meet the performance criteria of reference method 21.~~

~~(c) The instrument must be calibrated before use on each day of its use by the methods specified in method 21.~~

~~(d) Calibration gases must be:~~

~~(1) Zero air (less than ten parts per million of hydrocarbon in air), and~~

~~(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 paragraph 5 of subdivision d, paragraph 9 of subdivision e, subdivision f, paragraph 6 of subdivision i, and paragraph 5 of subdivision l, the test shall comply with the following requirements:~~

~~(a) The requirements of subparagraphs a through d of paragraph 2 shall 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) Each piece of equipment within a process unit is presumed to be in volatile organic compounds service unless an owner or operator demonstrates that the piece of equipment is not in volatile organic compounds service. For a piece of equipment to be considered not in volatile organic compounds service, it must be determined that the percent volatile organic compounds content can be reasonably expected never to exceed ten percent by weight. For purposes of determining the percent volatile organic compounds content in~~

~~the process fluid that is contained in or contacts equipment, procedures that conform to the general methods described in A.S.T.M. E-22260, E-168, E-169 must be used.~~

~~(a) If an owner or operator decides to exclude nonreactive organic compounds from the total quantity of organic compounds in determining the percent volatile organic compounds content of the process fluid, the exclusion will be allowed if:~~

~~(1) Those substances excluded are those considered as having negligible photochemical reactivity by the department; and~~

~~(2) The owner or operator demonstrates that the percent organic content, excluding nonreactive organic compounds, can be reasonably expected never to exceed ten percent by weight.~~

~~(b) An owner or operator may use engineering judgment rather than the procedures in paragraph 4 and subparagraph a of paragraph 4 to demonstrate that the percent volatile organic compounds content does not exceed ten percent by weight, provided that the engineering judgment demonstrates that the volatile organic compounds content clearly does not exceed ten percent by weight. When an owner or operator and the department do not agree on whether a piece of equipment is not in volatile organic compounds service, however, the procedures in paragraph 4 and subparagraph a of paragraph 4 must be used to resolve the disagreement. If an owner or operator determines that a piece of equipment is in volatile organic compounds service, the determination can be revised only after following the procedures in paragraph 4 and subparagraph a of paragraph 4.~~

~~(5) Equipment is in light liquid service if the following conditions apply:~~

~~(a) The vapor pressure of one or more of the components is greater than 0.3 kilopascal~~

~~at twenty degrees Celsius (68 degrees Fahrenheit). Vapor pressures may be obtained from standard reference texts or may be determined by A.S.T.M. D-2879,~~

~~(b) The total concentration of the pure components having a vapor pressure greater than 0.3 kilopascals at twenty degrees Celsius (68 degrees Fahrenheit) is equal to or greater than twenty percent by weight, and~~

~~(c) The fluid is a liquid at operating conditions.~~

~~(6) Samples used in conjunction with paragraphs 4, 5, and 7 shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.~~

~~(7) Reference method 22 must be used to determine the compliance of flares with the visible emission provisions of this subsection. The observation period is two hours and shall be used according to method 22.~~

~~(a) The presence of a flare pilot flame must be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.~~

~~(b) The net heating value of the gas being combusted in a flare must be calculated using the following equation:~~

$$\cancel{H_T = K \sum_{i=1}^{n} C_i H_i}$$

~~where:~~

~~H_T = Net heating value of the sample, MJ/scm, where the net enthalpy per mole of off-gas is based on combustion at twenty-five degrees Celsius (77 degrees Fahrenheit) and seven hundred sixty mm Hg, but the standard temperature for determining the volume corresponding to one mole is twenty degrees Celsius (68 degrees Fahrenheit).~~

~~K = Constant $1.740 \times 10^{-7} \left(\frac{1}{ppm}\right) \left(\frac{g\ mole}{scm}\right) \left(\frac{MJ}{kcal.}\right)$~~

~~where:~~

~~standard temperature for $\frac{g\ mole}{scm}$ is~~

~~twenty degrees Celsius [68 degrees Fahrenheit]~~

~~C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by reference method 18 and measured for hydrogen and carbon monoxide by A.S.T.M. D1946-77, and~~

~~H_i = Net heat of combustion of sample component i, kcal/g mole at twenty-five degrees Celsius [77 degrees Fahrenheit and seven hundred sixty mm Hg]. The heats of combustion may be determined using A.S.T.M. D2382-76 if published values are not available or cannot be calculated.~~

~~(c) The actual exit velocity of a flare must be determined by dividing volumetric flow rate (in units of standard temperature and pressure), as determined by reference methods 2, 2A, 2C, or 2D as appropriate, by the unobstructed (free) cross sectional area of the flare tip.~~

~~(d) The maximum permitted velocity, V_{max}, for flares complying with subparagraph c of paragraph 4 of subdivision c of subsection 14 of section 33-15-12-01 must be determined by the following equation.~~

~~$\text{Log}_{10}\ (V_{max}) = (H_T + 28.8)/31.7$~~

~~V_{max} = Maximum permitted velocity, M/sec.~~

~~28.8 = Constant~~

~~31.7 = Constant~~

~~H_T = The net heating value as determined in subparagraph b of paragraph 7.~~

~~(e) The maximum permitted velocity, V_{max}, for air-assisted flares must be determined by the following equation:~~

~~V_{max} = 8.706 + 0.7084 (H_T)~~

~~V_{max} = Maximum permitted velocity, M/sec.~~

~~8.706 = Constant~~

~~0.7084 = Constant~~

~~H_T = The net heating value as determined in subparagraph b of paragraph 7.~~

(1) In conducting the performance test required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01.

(2) The owner or operator shall determine compliance with the standards in subdivisions c through o as follows:

(a) Method 21 must be used to determine the presence of leaking sources. The instrument must be calibrated before use each day of its use by the procedures specified in method 21. The following calibration gases must be used:

[1] Zero air (less than 10 ppm of hydrocarbon in air); and

[2] A mixture of methane or n-hexane and air at a concentration of about, but less than, ten thousand parts per million methane or n-hexane.

(3) The owner or operator shall determine compliance with the no detectable emission standards in subdivisions c through o as follows:

(a) The requirements of paragraph 2 must apply.

(b) Method 21 must be used to determine the background level. All potential leak interfaces must be traversed as close to the interface as possible. 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) The owner or operator shall test each piece of equipment unless the owner or operator demonstrates that a process unit is not in volatile organic compounds service, i.e., that volatile organic compounds content would never be reasonably expected to exceed ten percent by weight. For purposes of this demonstration, the following methods and procedures must be used:

(a) Procedures that conform to the general methods in ASTM E-260, E-168, and E-169 must be used to determine the percent volatile organic compounds content in the process fluid that is contained in or contacts a piece of equipment.

(b) Organic compounds that are considered by the department to have negligible photochemical reactivity may be excluded from the total quantity of organic compounds in determining the volatile organic compounds content of the process fluid.

(c) Engineering judgment may be used to estimate the volatile organic compounds content, if a piece of equipment has not been shown previously to be in service. If the department disagrees with the judgment, subparagraphs a and b of paragraph 4 must be used to resolve the disagreement.

(5) The owner or operator shall demonstrate that an equipment is in light liquid service by showing that all the following conditions apply:

(a) The vapor pressure of one or more of the components is greater than 0.3 kilopascals at twenty degrees Celsius [68 degrees Fahrenheit]. Standard reference texts or ASTM D-2879 must be used to determine the vapor pressures.

(b) The total concentration of the pure components having a vapor pressure greater than 0.3 kilopascals at twenty degrees Celsius [68 degrees Fahrenheit] is equal to or greater than twenty percent by weight.

(c) The fluid is a liquid at operating conditions.

(6) Samples used in conjunction with paragraphs 4, 5 and 7 must be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(7) The owner or operator shall determine compliance with the standards of flares as follows:

(a) Method 22 must be used to determine visible emissions.

(b) A thermocouple or any other equivalent device must be used to monitor the presence of a pilot flame in the flare.

(c) The maximum permitted velocity (V_{max}) for air-assisted flares must be computed using the following equation:

$$V_{max} = 8.706 + .7084 H_T$$

where:

V_{max} = maximum permitted velocity, m/sec.

H_T = net heating value of the gas being combusted, MJ/scm.

(d) The net heating value (H_T) of the gas being combusted in a flare must be computed as follows:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

where:

K = conversion constant, 1.740×10^7 [(g-mole)(MJ)]/[(ppm)(scm)(kcal)].

C_i = concentration of sample component "i", ppm.

H_i = net heat of combustion of sample component "i" at 25 °C and 760 mm Hg, kcal/g-mole.

(e) Method 18 and ASTM D 2504-67 must be used to determine the concentration of sample component "i".

(f) ASTM D 2382-76 must be used to determine the net heat of combustion of component "i" if published values are not available or cannot be calculated.

(g) Method 2, 2A, 2C, or 2D, as appropriate, must be used to determine the actual exit velocity of a flare. If needed, the unobstructed (free) cross-sectional area of the flare tip shall be used.

q. Recordkeeping requirements.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the recordkeeping requirements of this subdivision. An owner or operator of more than one affected facility subject to the provisions of this subsection may comply with the recordkeeping requirements for these facilities in one recordkeeping system if the system identifies each record by each facility.

(2) When each leak is detected as specified in subdivisions d, e, i, j, and n, the following requirements apply:

(a) A weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment.

(b) The identification on a valve may be removed after it has been monitored for two successive months as specified in paragraph 3 of subdivision i and no leak has been detected during those two months.

(c) The identification on equipment, except on a valve, may be removed after it has been repaired.

(3) When each leak is detected as specified in subdivisions d, e, i, j, and n, the following information must be recorded in a log and must be kept for two years in a readily accessible location:

(a) The instrument and operator identification numbers and the equipment identification number.

(b) The date the leak was detected and the dates of each attempt to repair the leak.

(c) Repair methods applied in each attempt to repair the leak.

(d) "Above ten thousand" if the maximum instrument reading measurement by the methods specified in paragraph 1 of subdivision p after each repair attempt is equal to or greater than ten thousand parts per million.

(e) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

(f) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

(g) The expected date of successful repair of the leak if a leak is not repaired within fifteen days.

(h) Dates of process unit shutdown that occur while the equipment is unrepaired.

(i) The date of successful repair of the leak.

(4) The following information pertaining to the design requirements for closed vent systems and control devices described in subdivision l must be recorded and kept in a readily accessible location:

(a) Detailed schematics, design specifications, and piping and instrumentation diagrams.

(b) The dates and descriptions of any changes in the design specifications.

(c) A description of the parameter or parameters monitored, as required in paragraph 5 of subdivision l, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(d) Periods when the closed vent systems and control devices required in subdivisions d, e, f, and g are not operated as designed, including periods when a flare pilot light does not have a flame.

(e) Dates of startups and shutdowns of the closed vent systems and control devices required in subdivisions d, e, f, and g.

(5) The following information pertaining to all equipment subject to the requirements in subdivisions c to l must be recorded in a log that is kept in a readily accessible location:

(a) A list of identification numbers for equipment subject to the requirements of this subsection.

(b) A list of identification numbers for equipment that are designated for no detectable emissions under the provisions of paragraph 5 of subdivision d, paragraph 9 of subdivision e, and paragraph 6 of subdivision i.

[1] The designation of equipment as subject to the requirements of paragraph 5 of subdivision d, paragraph 9 of subdivision e, and paragraph 6 of subdivision i must be signed by the owner or operator.

(c) A list of equipment identification numbers for pressure relief devices required to comply with subdivision f.

(d) The dates of each compliance test as required in paragraph 5 of subdivision d, paragraph 9 of subdivision e, subdivision f, and paragraph 6 of subdivision i.

(e) The background level measured during each compliance test.

(f) The maximum instrument reading measured at the equipment during each compliance test.

(g) A list of identification numbers for equipment in vacuum service.

(6) The following information pertaining to all valves subject to the requirements of paragraphs 7 and 8 of subdivision i must be recorded in a log that is kept in a readily accessible location:

(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 schedule for monitoring each valve.

(7) The following information must be recorded for valves complying with subdivision n:

(a) A schedule of monitoring.

(b) The percent of valves found leaking during each monitoring period.

(8) The following information must be recorded in a log that is kept in a readily accessible location:

(a) Design criterion required in subparagraph e of paragraph 4 of subdivision d and subparagraph a of paragraph 5 of subdivision e and explanation of the design criterion; and

(b) Any changes to this criterion and the reasons for the changes.

(9) The following information must be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in paragraph 4 of subdivision a:

(a) An analysis demonstrating the design capacity of the affected facility;

(b) A statement listing the feed or raw materials and products from the affected facilities and an analysis demonstrating whether these chemicals are heavy liquids or beverage alcohol; and

(c) An analysis demonstrating that equipment is not in volatile organic compounds service.

(10) Information and data used to demonstrate that a piece of equipment is not in volatile organic compounds service must be recorded in a log that is kept in a readily accessible location.

(11) The provisions of subdivisions b and d of subsection 6 of section 33-15-12-01 do not apply to affected facilities subject to this subsection.

r. Reporting requirements.

(1) Each owner or operator subject to the provisions of this subsection shall submit semiannual reports to the department beginning six months after the initial startup date.

(2) The initial semiannual report to the department shall include the following information:

(a) Process unit identification.

(b) Number of valves subject to the requirements of subdivision i, excluding those valves designated for no detectable emissions under the provisions of paragraph 6 of subdivision i.

(c) Number of pumps subject to the requirements of subdivision d, excluding those pumps designated for no detectable emissions under the provisions of paragraph 5 of subdivision d and those pumps complying with paragraph 6 of subdivision d.

(d) Number of compressors subject to the requirements of subdivision e, excluding those compressors designated for no detectable emissions under the provisions of paragraph 9 of subdivision e and those compressors complying with paragraph 8 of subdivision e.

(3) All semiannual reports to the department must include the following information, summarized from the information in subdivision q:

  (a) Process unit identification.

  (b) For each month during the semiannual reporting period.

    [1] Number of valves for which leaks were detected as described in paragraph 2 of subdivision i or subdivision n.

    [2] Number of valves for which leaks were not repaired as required in paragraph 4 of subdivision i.

    [3] Number of pumps for which leaks were detected as described in paragraph 2 of subdivision d and subparagraph f of paragraph 4 of subdivision d.

    [4] Number of pumps for which leaks were not repaired as required in paragraph 3 of subdivision d and item 1 of subparagraph f of paragraph 4 of subdivision d.

    [5] Number of compressors for which leaks were detected as described in paragraph 6 of subdivision e.

    [6] Number of compressors for which leaks were not repaired as required in paragraph 7 of subdivision e.

    [7] The facts that explain each delay of repair and, where appropriate, why a process unit shutdown was technically infeasible.

  (c) Dates of process unit shutdowns which occurred within the semiannual reporting period.

  (d) Revisions to items reported according to paragraph 2 if changes have occurred since the initial report or subsequent revisions to the initial report.

(4) An owner or operator electing to comply with the provisions of subdivisions m and n shall notify the department of the alternative

standard selected ninety days before implementing either of the provisions.

(5) An owner or operator shall report the results of all performance tests in accordance with subsection 7 of section 33-15-12-01. The provisions of subdivision d of subsection 7 of section 33-15-12-01 do not apply to affected facilities subject to the provisions of this subsection except that an owner or operator must notify the department of the schedule for the initial performance tests at least thirty days before the initial performance tests.

s. Reconstruction. For the purpose of this subsection:

(1) The cost of the following frequently replaced components of the facility may not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable new facility" under subsection 13 of section 33-15-12-01: pump seals, nuts and bolts, rupture disks, and packings.

(2) Under subsection 13 of section 33-15-12-01, the "fixed capital cost of new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph 1) which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any two-year period following the applicability date for the appropriate subsection. (See the "Applicability and designation of affected facility" subdivision of the appropriate subsection.) For purposes of this paragraph, "commenced" means that an owner or operator has undertaken a continuous program of component replacement or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of component replacement.

t. List of chemicals produced by affected facilities. The chemicals are produced, as intermediates for final products, by process units covered under this subsection as listed in 40 CFR 60.489. The applicability date for process units producing one or more of these chemicals is January 5, 1981.

26. **Standards of performance for equipment leaks of volatile organic compounds in petroleum refineries.**

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities in petroleum refineries.

(2) A compressor is an affected facility.

(3) The group of all the equipment (defined in subdivision b) within a process unit is an affected facility.

(4) Any affected facility under paragraphs 1, 2, and 3 of this subdivision that commences construction or modifications after January 4, 1983, is subject to the requirements of this subsection.

(5) Addition or replacement of equipment (defined in subdivision b) for the purpose of process improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under this subsection.

(6) Facilities subject to subsections 24 and 25 are excluded from this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25, and in subsection 2 of section 33-15-12-01.

(1) "Equipment" means each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in volatile organic compounds service. For the purposes of recordkeeping and reporting only, compressors are considered equipment.

(2) "In hydrogen service" means that a compressor contains a process fluid that meets the conditions specified in paragraph 2 of subdivision d.

(3) "In light liquid service" means that the piece of equipment contains a liquid that meets the conditions specified in paragraph 3 of subdivision d.

(4) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through the distillation of petroleum, or through the redistillation, cracking, or reforming of unfinished petroleum derivatives.

(5) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(6) "Process unit" means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

c. Standards.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of subdivisions c to l of subsection 25 as soon as practicable, but no later than one hundred eighty days after initial startup.

(2) An owner or operator may elect to comply with the requirements of subdivisions m and n of subsection 25.

(3) An owner or operator may apply to the department and administrator for a determination of equivalency for any means of emission limitation that achieves a reduction in emissions of volatile organic compounds at least equivalent to the reduction in emissions of volatile organic compounds achieved by the controls required in this subsection. In doing so, the owner or operator shall comply with requirements of subdivision o of subsection 25.

(4) Each owner or operator subject to the provisions of this subsection shall comply with the provisions of subdivision p of subsection 25 except as provided in subdivision d of this subsection.

(5) Each owner or operator subject to the provisions of this subsection shall comply

with the provisions of subdivisions q and r of subsection 25.

d. Exceptions.

(1) Each owner or operator subject to the provisions of this subsection may comply with the following exceptions to the provisions of subsection 25.

(2) Compressors in hydrogen service are exempt from the requirements of subdivision c if an owner or operator demonstrates that a compressor is in hydrogen service.

(a) Each compressor is presumed not to be in hydrogen service unless an owner or operator demonstrates that the piece of equipment is in hydrogen service. For a piece of equipment to be considered in hydrogen service, it must be determined that the percent hydrogen content can be reasonably expected always to exceed fifty percent by volume. For purposes of determining the percent hydrogen content in the process fluid that is contained in or contacts a compressor, procedures that conform to the general method described in A.S.T.M. E-260, E-168, or E-169 must be used.

(b) An owner or operator may use engineering judgment rather than procedures in subparagraph a of paragraph 2 of this subdivision to demonstrate that the percent content exceeds fifty percent by volume, provided the engineering judgment demonstrates that the content clearly exceeds fifty percent by volume. When an owner or operator and the department do not agree on whether a piece of equipment is in hydrogen service, however, the procedures in subparagraph a of paragraph 2 must be used to resolve the disagreement. If an owner or operator determines that a piece of equipment is in hydrogen service, the determination can be revised only after following the procedures in subparagraph a of paragraph 2.

(3) Any existing reciprocating compressor that becomes an affected facility under provisions of subsection 12 or 13 of section 33-15-12-01

is exempt from paragraphs 1, 2, 3, 4, 5, and 8 of subdivision e of subsection 25 provided the owner or operator demonstrates that recasting the distance piece or replacing the compressor are the only options available to bring the compressor into compliance with the provisions of paragraphs 1, 2, 3, 4, 5, and 8 of subdivision e of subsection 25.

(4) An owner or operator may use the following provisions in addition to paragraph 5 of subdivision p of subsection 25: Equipment is in light liquid service if the percent evaporated is greater than ten percent at one hundred fifty degrees Celsius [302 degrees Fahrenheit] as determined by A.S.T.M. method D-86.

27. **Standards of performance for bulk gasoline terminals.**

a. Applicability and designation of affected facility.

(1) The affected facility to which the provisions of this subsection apply is the total of all the loading racks at the bulk gasoline terminal which deliver liquid product into gasoline tank trucks.

(2) Each facility under paragraph 1 of this subdivision, the construction or modification of which is commenced after December 17, 1980, is subject to the provisions of this subsection.

(3) For purposes of this subsection, any replacement of components of an existing facility, described in paragraph 1, commenced before August 18, 1983, in order to comply with any emission standard adopted by a state or political subdivision thereof will not be considered a reconstruction under the provisions of subsection 13 of section 33-15-12-01.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Bulk gasoline terminal" means any gasoline facility which received gasoline by pipeline, ship, or barge and has a gasoline throughput greater than seventy-five thousand seven hundred liters [19,984.80 gallons] per day.

Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under federal, state, or local law and discoverable by the department and any other person.

(2) "Continuous vapor processing system" means a vapor processing system that treats total organic compounds vapors collected from gasoline tank trucks on a demand basis without intermediate accumulation in a vapor holder.

(3) "Existing vapor processing system" means a vapor processing system (capable of achieving emissions to the atmosphere no greater than eighty milligrams of total organic compounds per liter of gasoline loaded), the construction or refurbishment of which was commenced before December 17, 1980, and which was not constructed or refurbished after that date.

(4) "Gasoline" means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater which is used as a fuel for internal combustion engines.

(5) "Gasoline tank truck" means a delivery tank truck used at bulk gasoline terminals which is loading gasoline or which has loaded gasoline on the immediately previous load.

(6) "Intermittent vapor processing system" means a vapor processing system that employs an intermediate vapor holder to accumulate total organic compounds vapors collected from gasoline tank trucks, and treats the accumulated vapors only during automatically controlled cycles.

(7) "Loading rack" means the loading arms, pumps, meters, shutoff valves, relief valves, and other piping and valves necessary to fill delivery tank trucks.

(8) "Refurbishment" means, with reference to a vapor processing system, replacement of components of, or addition of components to, the system within any two-year period such that the fixed capital cost of the new components required for such component replacement or addition exceeds fifty percent

of the cost of a comparable entirely new system.

(9) "Total organic compounds" means those compounds measured according to the procedures in subdivision d.

(10) "Vapor collection system" means any equipment used for containing total organic compounds vapors displaced during the loading of gasoline tank trucks.

(11) "Vapor processing system" means all equipment used for recovering or oxidizing total organic compounds vapors displaced from the affected facility.

(12) "Vaportight gasoline tank truck" means a gasoline tank truck which has demonstrated within the twelve preceding months that its produce delivery tank will sustain a pressure change of not more than seven hundred fifty pascals [75 mm of water] within five minutes after it is pressurized to four thousand five hundred pascals [450 mm of water]. This capability is to be demonstrated using the pressure test procedure specified in reference method 27.

c. Standard for volatile organic compound (VOC) emissions from bulk gasoline terminals. On and after the date on which subdivision a of subsection 7 of section 33-15-12-01 requires a performance test to be completed, the owner or operator of each bulk gasoline terminal containing an affected facility shall comply with the requirements of this subdivision.

(1) Each affected facility must be equipped with a vapor collection system designed to collect the total organic compounds vapors displaced from tank trucks during product loading.

(2) The emissions to the atmosphere from the vapor collection system due to the loading of liquid product into gasoline tank trucks are not to exceed thirty-five milligrams of total organic compounds per liter of gasoline loaded, except as noted in paragraph 3 of this subdivision.

(3) For each affected facility equipped with an existing vapor processing system, the emissions to the atmosphere from the vapor collection system due to the loading of liquid

product into gasoline tank trucks are not to exceed eighty milligrams of total organic compounds per liter of gasoline loaded.

(4) Each vapor collection system must be designed to prevent any total organic compounds vapors collected at one loading rack from passing to another loading rack.

(5) Loadings of liquid product into gasoline tank trucks must be limited to vaportight gasoline tank trucks using the following procedures:

  (a) The owner or operator shall obtain the vaportightness documentation described in paragraph 2 of subdivision f for each gasoline tank truck which is to be loaded at the affected facility.

  (b) The owner or operator shall require the tank identification number to be recorded as each gasoline tank truck is loaded at the affected facility.

  (c) The owner or operator shall cross-check each tank identification number obtained in subparagraph b of paragraph 5 of this subdivision with the file of tank vaportightness documentation within two weeks after the corresponding tank is loaded.

  (d) The terminal owner or operator shall notify the owner or operator of each nonvaportight gasoline tank truck loaded at the affected facility within three weeks after the loading has occurred.

  (e) The terminal owner or operator shall take steps assuring that the nonvaportight gasoline tank truck will not be reloaded at the affected facility until vaportightness documentation for that tank is obtained.

  (f) Alternate procedures to those described in subparagraphs a through e of paragraph 5 of this subdivision for limiting gasoline tank truck loadings may be used upon application to, and approval by, the department and administrator.

(6) The owner or operator shall act to assure that loadings of gasoline tank trucks at the

affected facility are made only into tanks equipped with vapor collection equipment that is compatible with the terminal's vapor collection system.

(7) The owner or operator shall act to assure that the terminal's and the tank truck's vapor collection systems are connected during each loading of a gasoline tank truck at the affected facility. Examples of actions to accomplish this include training drivers in the hookup procedures and posting visible reminder signs at the affected loading racks.

(8) The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the delivery tank from exceeding four thousand five hundred pascals [450 millimeters of water] during product loading. This level is not to be exceeded when measured by the procedures specified in paragraph ~~2~~4 of subdivision d.

(9) No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than four thousand five hundred pascals [450 millimeters of water].

(10) Each calendar month, the vapor collection system, the vapor processing system, and each loading rack handling gasoline must be inspected during the loading of gasoline tank trucks for total organic compounds liquid or vapor leaks. For purposes of this paragraph, detection methods incorporating sight, sound, or smell are acceptable. Each detection of a leak shall be recorded and the source of the leak repaired within fifteen calendar days after it is detected.

d. Test methods and procedures.

~~(1) Subdivision f of subsection 7 of section 33-15-12-01 does not apply to the performance test procedures required by this subsection.~~

~~(2) For the purpose of determining compliance with paragraph 8 of subdivision c, the following procedures must be used:~~

~~(a) Calibrate and install a pressure measurement device (liquid manometer, magnehelic gauge, or equivalent~~

instrument), capable of measuring up to five hundred millimeters of water gauge pressure with ±2.5 millimeters of water precision.

(b) Connect the pressure measurement device to a pressure tap in the terminal's vapor collection system, located as close as possible to the connection with the gasoline tank truck.

(c) During the performance test, record the pressure every five minutes while a gasoline tank truck is being loaded, and record the highest instantaneous pressure that occurs during each loading. Every loading position must be tested at least once during the performance test.

(3) For the purpose of determining compliance with the mass emission limitations of paragraphs 2 and 3 of subdivision c, the following reference methods must be used:

(a) For the determination of volume at the exhaust vent:

(1) Method 2B for combustion vapor processing systems.

(2) Method 2A for all other vapor processing systems.

(b) For the determination of total organic compounds concentration at the exhaust vent, method 25A or 25B. The calibration gas must be either propane or butane.

(4) Immediately prior to a performance test required for determination of compliance with paragraphs 2, 3, and 8 of subdivision c, all potential sources of vapor leakage in the terminal's vapor collection system equipment must be monitored for leaks using method 21. The monitoring must be conducted only while a gasoline tank truck is being loaded. A reading of ten thousand ppmv or greater as methane must be considered a leak. All leaks must be repaired prior to conducting the performance test.

(5) The test procedure for determining compliance with paragraphs 2 and 3 of subdivision c is as follows:

~~(a) All testing equipment must be prepared and installed as specified in the appropriate test methods.~~

~~(b) The time period for a performance test must be not less than six hours, during which at least three hundred thousand liters (79,200 gallons) of gasoline are loaded. If the throughput criterion is not met during the initial six hours, the test may be either continued until the throughput criterion is met, or resumed the next day with another complete six hours of testing. As much as possible, testing should be conducted during the six-hour period in which the highest throughput normally occurs.~~

~~(c) For intermittent vapor processing systems:~~

~~(1) The vapor holder level must be recorded at the start of the performance test. The end of the performance test shall coincide with a time when the vapor holder is at its original level.~~

~~(2) At least two startups and shutdowns of the vapor processor shall occur during the performance test. If this does not occur under automatically controlled operation, the system must be manually controlled.~~

~~(d) The volume of gasoline dispensed during the performance test period at all loading racks whose vapor emissions are controlled by the processing system being tested shall be determined. This volume may be determined from terminal records or from gasoline dispensing meters at each loading rack.~~

~~(e) An emission testing interval shall consist of each five-minute period during the performance test. For each interval:~~

~~(1) The reading from each measurement instrument must be recorded, and~~

~~(2) The volume exhausted and the average total organic compounds concentration in the exhaust vent must be determined, as specified in the appropriate test method. The average total organic compounds concentration shall correspond to the volume measurement by taking into account the sampling system response time.~~

~~(f) The mass emitted during each testing interval must be calculated as follows:~~

$$\cancel{M_{ei} = 10^{-6} K V_{es} C_e}$$

~~where:~~

$\cancel{M_{ei}}$ ~~= mass of total organic compounds emitted during testing interval i, mg.~~

$\cancel{V_{es}}$ ~~= volume of air-vapor mixture exhausted,~~ $\cancel{m^3}$~~, at standard conditions.~~

$\cancel{C_e}$ ~~= total organic compounds concentration (as measured) at the exhaust vent, ppmv.~~

~~K = density of calibration gas,~~ $\cancel{mg/m^3}$~~, at standard conditions.~~

~~=~~ $\cancel{1.83 \times 10^6}$~~, for propane~~

~~=~~ $\cancel{2.41 \times 10^6}$~~, for butane~~

~~S = standard conditions, 20°C and 760 mm Hg.~~

~~(g) The total organic compounds mass emission must be calculated as follows:~~

$$\cancel{E = \frac{\sum_{i=1}^{n} M_{ei}}{L}}$$

~~where:~~

~~E = mass of total organic compounds emitted per volume of gasoline loaded, mg/liter.~~

~~M_{ei} = mass of total organic compounds emitted during testing interval i, mg.~~

~~L = total volume of gasoline loaded, liters.~~

~~n = number of testing intervals.~~

~~(6) The owner or operator may adjust the emission results to exclude the methane and ethane content in the exhaust vent by any method approved by the department.~~

(1) In conducting the performance tests required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. The three-run requirement of subdivision f of subsection 7 of section 33-15-12-01 does not apply to this subsection.

(2) Immediately before the performance test required to determine compliance with paragraphs 2, 3, and 8 of subdivision c, the owner or operator shall use method 21 to monitor for leakage of vapor all potential sources in the terminal's vapor collection system equipment while a gasoline tank truck is being loaded. The owner or operator shall repair all leaks with readings of ten thousand parts per million (as methane) or greater before conducting the performance test.

(3) The owner or operator shall determine compliance with the standards in paragraphs 2 and 3 of subdivision c as follows:

(a) The performance test must be six hours long during which at least three hundred thousand liters of gasoline is loaded. If this is not possible, the test may be continued the same day until three hundred thousand liters of gasoline is loaded or the test may be resumed the next day with another complete six-hour period. In the latter case, the three hundred thousand-liter criterion need not be met. However, as much as possible, testing should be conducted during the six-hour period in which the highest throughput normally occurs.

(b) If the vapor processing system is intermittent in operation, the performance test must begin at a reference vapor holder level and must end at the same reference point. The test must include at least two startups and shutdowns of the vapor processor. If this does not occur under automatically controlled operations, the system must be manually controlled.

(c) The emission rate (E) of total organic compounds must be computed using the following equation:

$$E = K \sum_{i=1}^{n} (V_{esi}\ C_{ei})/(L\ 10^{6})$$

where:

E = emission rate of total organic compounds, mg/liter of gasoline loaded.

V_{esi} = volume of air-vapor mixture exhausted at each interval "i", scm.

C_{ei} = concentration of total organic compounds at each interval "i", ppm.

L = total volume of gasoline loaded, liters.

n = number of testing intervals.

i = emission testing interval of 5 minutes.

K = density of calibration gas, 1.83×10^{6} for propane and 2.41×10^{6} for butane, mg/scm.

(d) The performance test must be conducted in intervals of five minutes. For each interval "i", readings from each measurement must be recorded, and the volume exhausted (V_{esi}) and the corresponding average total organic compounds concentration (C_{ei}) must be determined. The sampling system response time must be considered in determining the average total organic compounds concentration corresponding to the volume exhausted.

(e) The following methods must be used to determine the volume (V_{esi}) air-vapor mixture exhausted at each interval:

[1] Method 2B must be used for combustion vapor processing systems.

[2] Method 2A must be used for all other vapor processing systems.

(f) Method 25A or 25B must be used for determining the total organic compounds concentration (C_{ei}) at each interval. The calibration gas must be either propane or butane. The owner or operator may exclude the methane and ethane content in the exhaust vent by any method (e.g., method 18) approved by the department or administrator.

(g) To determine the volume (L) of gasoline dispensed during the performance test period at all loading racks whose vapor emissions are controlled by the processing system being tested, terminal records or readings from gasoline dispensing meters at each loading rack must be used.

(4) The owner or operator shall determine compliance with the standard in paragraph 8 of subdivision c as follows:

(a) A pressure measurement device (liquid manometer, magnehelic gauge, or equivalent instrument), capable of measuring up to five hundred mm of water gauge pressure with plus or minus 2.5 mm of water precision, must be calibrated and installed on the terminal's vapor collection system at a pressure tap located as close as possible to the connection with the gasoline tank truck.

(b) During the performance test, the pressure must be recorded every five minutes while a gasoline truck is being loaded;

the highest instantaneous pressure that occurs during each loading must also be recorded. Every loading position must be tested at least once during the performance test.

e. [Reserved]

f. Reporting and recordkeeping.

(1) The tank truck vaportightness documentation required under subparagraph a of paragraph 5 of subdivision c must be kept on file at the terminal in a permanent form available for inspection.

(2) The documentation file for each gasoline tank truck must be updated at least once per year to reflect current test results as determined by method 27. This documentation must include, as a minimum, the following information:

(a) Test title: gasoline delivery tank pressure test - EPA reference method 27.

(b) Tank owner and address.

(c) Tank identification number.

(d) Testing location.

(e) Date of test.

(f) Tester name and signature.

(g) Witnessing inspector, if any: name, signature, and affiliation.

(h) Test results: actual pressure change in five minutes, millimeter of water (average for two runs).

(3) A record of each monthly leak inspection required under paragraph 10 of subdivision c must be kept on file at the terminal for at least two years. Inspection records must include, as a minimum, the following information:

(a) Date of inspection.

(b) Findings (may indicate no leaks discovered; or location, nature, and severity of each leak).

(c) Leak determination method.

(d) Corrective action (date each leak repaired; reasons for any repair interval in excess of fifteen days).

(e) Inspector name and signature.

(4) The terminal owner or operator shall keep documentation of all notifications required under subparagraph d of paragraph 5 of subdivision c on file at the terminal for at least two years.

(5) [Reserved]

(6) The owner or operator of an affected facility shall keep records of all replacements or additions of components performed on an existing vapor processing system for at least three years.

g. Reconstruction.

(1) The cost of the following frequently replaced components of the affected facility may not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital costs that would be required to construct a comparable entirely new facility" under subsection 13 of section 33-15-12-01: pump seals, loading arm gaskets and swivels, coupler gaskets, overfill sensor couplers and cables, flexible vapor hoses, and grounding cables and connectors.

(2) Under subsection 13 of section 33-15-12-01, the "fixed capital costs of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph 1) which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any two-year period following December 17, 1980. For purposes of this paragraph, "commenced" means that an owner or operator has undertaken a continuous program of component replacement or that an owner or operator has entered into a contractual obligation to undertake and complete, within a

reasonable time, a continuous program of component replacement.

28. Standards of performance for nonmetallic mineral processing plants.

a. Applicability and designation of affected facility.

(1) Except as provided in paragraphs 2, 3, and 4 of this subdivision, the provisions of this subsection are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck, or railcar loading station.

(2) An affected facility that is subject to the provisions of subsection 3 or 7 of section 33-15-12-04 or that follows in the plant process any facility subject to the provisions of subsection 3 or 7 of section 33-15-12-04 is not subject to the provisions of this subsection.

(3) Facilities at the following plants are not subject to the provisions of this subsection:

(a) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in subdivision b, of 23 megagrams per hour [25 tons per hour] or less;

(b) Portable sand and gravel plants and crushed stone plants with capacities, as defined in subdivision b, of 136 megagrams per hour [150 tons per hour] or less; and

(c) Common clay plants and pumice plants with capacities, as defined in subdivision b, of nine megagrams per hour [10 tons per hour] or less.

(4) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in subdivision b, having the same function as the existing facility, the new facility is exempt from the provisions of subdivisions c, e, and f, except as provided for in subparagraph b of paragraph 4 of this subdivision.

(a) An owner or operator seeking to comply with this paragraph shall comply with the reporting requirements of paragraphs 1 and 2 of subdivision g.

(b) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph 4 and must comply with the provisions of subdivisions c, e, and f.

(5) An affected facility under paragraph 1 that commences construction, reconstruction, or modification after August 31, 1983, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Bagging operation" means the mechanical process by which bags are filled with nonmetallic minerals.

(2) "Belt conveyor" means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

(3) "Bucket elevator" means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.

(4) "Building" means any frame structure with a roof.

(5) "Capacity" means the cumulative rated capacity of all initial crushers that are part of the plant.

(6) "Capture system" means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more process operations to a control device.

(7) "Control device" means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere

from one or more process operations at a nonmetallic mineral processing plant.

(8) "Conveying system" means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include, but are not limited to, the following: feeders, belt conveyors, bucket elevators, and pneumatic systems.

(9) "Crusher" means a machine used to crush any nonmetallic minerals, and includes, but is not limited to, the following types: jaw, gyratory, cone, roll, rod, mill, hammermill, and impactor.

(10) "Enclosed truck or railcar loading station" means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

(11) "Fixed plant" means any nonmetallic mineral processing plant at which the processing equipment specified in paragraph 1 of subdivision a is attached by a cable, chain, turnbucket, bolt, or other means (except electrical connections) to any anchor, slab, or structure including bedrock.

(12) "Fugitive emission" means particulate matter that is not collected by a capture system and is released into the atmosphere at the point of generation.

(13) "Grinding mill" means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

(14) "Initial crusher" means any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.

(15) "Nonmetallic mineral" means any of the following minerals or any mixture of which the majority is any of the following minerals:

(a) Crushed and broken stone, including limestone, dolomite, granite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale, and shell.

(b) Sand and gravel.

(c) Clay including kaolin, fireclay, bentonite, fuller's earth, ball clay, and common clay.

(d) Rock salt.

(e) Gypsum.

(f) Sodium compounds, including sodium carbonate, sodium chloride, and sodium sulfate.

(g) Pumice.

(h) Gilsonite.

(i) Talc and pyrophyllite.

(j) Boron, including borax, kernite, and colemanite.

(k) Barite.

(l) Fluorospar.

(m) Feldspar.

(n) Diatomite.

(o) Perlite.

(p) Vermiculite.

(q) Mica.

(r) Kyanite, including andalusite, sillimanite, topaz, and dumortierite.

(16) "Nonmetallic mineral processing plant" means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as

provided in paragraphs 2 and 3 of subdivision a.

(17) "Portable plant" means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there may be no cable, chain, turnbuckle, bolt, or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

(18) "Production line" means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.

(19) "Screening operation" means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens).

(20) "Size" means the rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.

(21) "Stack emission" means the particulate matter that is released to the atmosphere from a capture system.

(22) "Storage bin" means a facility for storage (including surge bins) of nonmetallic minerals prior to further processing or loading.

(23) "Transfer point" means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.

(24) "Truck dumping" means the unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include, but are not limited to: trucks, front-end loaders, skip hoists, and railcars.

(25) "Vent" means an opening through which there is mechanically induced air flow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

c. Standard for particulate matter.

(1) On and after the date on which the performance test required to be conducted by subsection 7 of section 33-15-12-01 is completed, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(a) Contain particulate matter in excess of 0.05 gram per dry cubic meter at standard conditions; or

(b) Exhibit greater than seven percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing control device. Facilities using a wet scrubber must comply with the reporting provisions of paragraphs 3, 4, and 5 of subdivision g.

(2) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after initial startup, no owner or operator subject to the provisions of this subsection may cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than ten percent opacity, except as provided in paragraphs 3, 4, and 5.

(3) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred eighty days after

initial startup, no owner or operator may cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than fifteen percent opacity.

(4) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this subdivision.

(5) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs 1, 2, and 3, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(a) No owner or operator may cause to be discharged into the atmosphere from any building enclosing any transfer point on a conveyor belt or any other affected facility any visible fugitive emissions except emissions from a vent as defined in subdivision b.

(b) No owner or operator may cause to be discharged into the atmosphere from any vent of any building enclosing any transfer point on a conveyor belt or any other affected facility emissions which exceed the stack emission limits in paragraph 1.

d. Reconstruction.

(1) The cost of replacement of ore-contact surfaces on processing equipment may not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under subsection 13 of section 33-15-12-01. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.

(2) Under subsection 13 of section 33-15-12-01, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph 1)

which are or will be replaced pursuant to all continuous programs of component replacement commenced within any two-year period following August 31, 1983.

e. Monitoring of operations. The owner or operator of any affected facility subject to the provisions of this subsection which uses a wet scrubber to control emissions shall install, calibrate, maintain, and operate the following monitoring devices:

(1) A device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±250 pascals [±1 inch water gauge pressure] and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(2) A device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.

f. Test methods and procedures.

~~(1) Reference methods in appendix A of this chapter, except as provided under subdivision b of subsection 7 of section 33-15-12-01, must be used to determine compliance with the standards prescribed under subdivision c as follows:~~

~~(a) Method 5 or method 17 for concentration of particulate matter and associated moisture content,~~

~~(b) Method 1 for sample and velocity traverses,~~

~~(c) Method 2 for velocity and volumetric flow rate,~~

~~(d) Method 3 for gas analysis,~~

~~(e) Method 9 for measuring opacity from stack emissions and process fugitive emissions, and emissions from building vents,~~

~~(f) Method 22 for measurement of visible fugitive emissions when determining compliance with the standard prescribed in paragraph 5 of subdivision c.~~

~~(2) For method 5, the following stipulations apply:~~

~~(a) The sampling probe and filter holder may be operated without heaters if the gas stream being sampled is at ambient temperature.~~

~~(b) For gas streams above ambient temperature, the sampling train must be operated with a probe and filter temperature high enough to prevent water condensation on the filter but no higher than one hundred twenty-one degrees Celsius (250 degrees Fahrenheit).~~

~~(c) The minimum sample volume must be 1.7 dscm (60 dscf).~~

~~(3) When determining compliance with the standard prescribed under paragraphs 2 and 3 of subdivision c, the department shall adhere to the following stipulations in addition to those listed in method 9:~~

~~(a) The minimum distance between the observer and the emission source must be 4.57 meters (15 feet).~~

~~(b) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). Note that the required observer position relative to the sun (method 9, section 2.1) must be followed.~~

~~(c) For affected facilities utilizing wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of the emissions is to be made at a point in the plume where the mist is no longer visible.~~

~~(d) If emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, the owner or operator may show compliance with the fugitive opacity standards in paragraphs 2 and 3 of subdivision e by:~~

~~(1) Causing the opacity of the combined emission stream from the facilities to meet the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream; or~~

~~(2) Separating emissions so that the opacity of emissions from each affected facility can be read to determine compliance with the applicable fugitive opacity limits specified for each facility in paragraphs 2 and 3 of subdivision e.~~

~~(4) When determining compliance with the standard prescribed under paragraphs 2 and 3 of subdivision e, using method 9, each performance test must consist of a minimum of thirty sets of twenty-four consecutive observations recorded at fifteen-second intervals, as described in method 9 of sections 2.4 and 2.5.~~

~~(5) When determining compliance with the standard prescribed under paragraph 5 of subdivision e, using method 22, the minimum total observation period for each building must be seventy-five minutes, and each side of the building and the roof must be observed for a minimum of fifteen minutes. Performance tests must be conducted while all affected facilities inside the building are operating.~~

(1) In conducting the performance test required in subsection 7 of section 33-15-12-01, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this chapter or other methods and procedures as specified in this subdivision, except as provided in subdivision b of subsection 7 of section 33-15-12-01. Acceptable alternative

methods and procedures are given in paragraph 5 of this subdivision.

(2) The owner or operator shall determine compliance with the particulate matter standards in paragraph 1 of subdivision c as follows:

(a) Method 5 or method 17 must be used to determine the particulate matter concentration. The sample volume must be at least 1.70 dry cubic meters at standard conditions [60 dscf]. For method 5, if the gas stream being sampled is at ambient temperature, the sampling probe and filter may be operated without heaters. If the gas stream is above ambient temperature, the sampling probe and filter may be operated at a temperature high enough, but no higher than one hundred twenty-one degrees Celsius [250 °F], to prevent water condensation on the filter.

(b) Method 9 and the procedures in subsection 9 of section 33-15-12-01 must be used to determine opacity.

(3) In determining compliance with the particulate matter standards in paragraphs 2 and 3 of subdivision c, the owner or operator shall use method 9 and the procedures in subsection 9 of section 33-15-12-01, with the following additions:

(a) The minimum distance between the observer and the emission source must be 4.57 meters [15 feet].

(b) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). The required observer position relative to the sun (method 9, section 2.1) must be followed.

(c) For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

(4) In determining compliance with paragraph 5 of subdivision c, the owner or operator shall use method 22 to determine fugitive emissions. The performance test must be conducted while all affected facilities inside the building are operating. The performance test for each building must be at least seventy-five minutes in duration, with each side of the building and the roof being observed for at least fifteen minutes.

(5) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this subdivision:

(a) For the method and procedure of paragraph 3 of this subdivision, if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

[1] Use of the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

[2] Separate the emissions so that the opacity of emissions from each affected facility can be read.

(6) To comply with paragraph 4 of subdivision g, the owner or operator shall record the measurements as required in paragraph 3 of subdivision 8 using the monitoring devices in paragraphs 1 and 2 of subdivision e during each particulate matter run and shall determine the averages.

g. Reporting and recordkeeping.

(1) Each owner or operator seeking to comply with paragraph 4 of subdivision a shall submit to the department the following information about the existing facility being replaced and the replacement piece of equipment.

(a) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

    [1] The rated capacity in tons per hour of the existing facility being replaced; and

    [2] The rated capacity in tons per hour of the replacement equipment.

(b) For a screening operation:

    [1] The total surface area of the top screen of the existing screening operation being replaced; and

    [2] The total surface area of the top screen of the replacement screening operation.

(c) For a conveyor belt:

    [1] The width of the existing belt being replaced; and

    [2] The width of the replacement conveyor belt.

(d) For a storage bin:

    [1] The rated capacity in tons of the existing storage bin being replaced; and

    [2] The rated capacity in tons of replacement storage bins.

(2) Each owner or operator seeking to comply with paragraph 4 of subdivision a shall submit the following data to the department and to the Director of the Emission Standards and Engineering Division (MD-13), United States Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

(a) The information described in paragraph 1 of subdivision a.

(b) A description of the control device used to reduce particulate matter emissions from the existing facility and a list of all other pieces of equipment controlled by the same control device.

(c) The estimated age of the existing facility.

(3) During the initial performance test of a wet scrubber, and daily thereafter, the owner or operator shall record the measurement of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.

(4) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the department of occurrences when the measurements of the scrubber pressure loss (or gain) and liquid flow rate differ by more than ±30 percent from ~~these measurements recorded~~ the average determined during the most recent performance test.

(5) The reports required under paragraph 4 shall be postmarked within thirty days following the end of the second and fourth calendar quarters.

(6) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in subdivision c, including reports of opacity observations made using method 9 to demonstrate compliance with paragraphs 2 and 3 of subdivision c and reports of observations using method 22 to demonstrate compliance with paragraph 5 of subdivision c.

29. **Standards of performance for petroleum drycleaners.**

a. Applicability and designation of affected facility.

(1) The provisions of this subsection are applicable to the following affected facilities located at a petroleum drycleaning plant with a total manufacturers' rated dryer capacity equal to or greater than thirty-eight kilograms [84 pounds]: petroleum solvent drycleaning, dryers, washers, filters, stills, and settling tanks.

(a) When the affected facility is installed in an existing plant that is not expanding the manufacturers' rated capacity of its petroleum solvent dryers, the total manufacturers' rated dryer capacity is the summation of the manufacturers' rated capacity for each existing petroleum solvent dryer.

(b) When the affected facility is installed in a plant that is expanding the manufacturers' rated capacity of its petroleum solvent dryers, the total manufacturers' rated dryer capacity is the summation of the manufacturers' rated dryer capacity for each existing and proposed new petroleum solvent dryer.

(c) When the affected facility is installed in a new plant, the total manufacturers' rated dryer capacity is the summation of the manufacturers' rated dryer capacity for each proposed new petroleum solvent dryer.

(d) The petroleum solvent dryers considered in the determination of the total manufacturers' rated dryer capacity are those new and existing dryers in the plant that will be in service at any time after the proposed new source or modification commences operation.

(2) Any facility under paragraph 1 that commences construction or modification after December 14, 1982, is subject to the requirements of this subsection.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Cartridge filter" means a discrete filter unit containing both filter paper and activated carbon that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in the installation of this device.

(2) "Dryer" means a machine used to remove petroleum solvent from articles of clothing or other textile or leather goods, after washing and removing of excess petroleum solvent, together with the piping and ductwork used in the installation of this device.

(3) "Manufacturers' rated dryer capacity" means the dryer's rated capacity of articles, in pounds or kilograms of clothing articles per load, dry basis, that is typically found on each dryer on the manufacturer's nameplate or in the manufacturer's equipment specifications.

(4) "Perceptible leaks" means any petroleum solvent vapor or liquid leaks that are conspicuous from visual observation or that bubble after application of a soap solution, such as pools or droplets of liquid, open containers or solvent, or solvent laden waste standing open to the atmosphere.

(5) "Petroleum drycleaner" means a drycleaning facility that uses petroleum solvent in a combination of washers, dryers, filters, stills, and settling tanks.

(6) "Settling tank" means a container that gravimetrically separates oils, grease, and dirt from petroleum solvent, together with the piping and ductwork used in the installation of this device.

(7) "Solvent filter" means a discrete solvent filter unit containing a porous medium that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in the installation of this device.

(8) "Solvent recovery dryer" means a class of drycleaning dryers that employs a condenser to condense and recover solvent vapors evaporated in a closed-loop stream of heated air, together with the piping and ductwork used in the installation of this device.

(9) "Still" means a device used to volatilize, separate, and recover petroleum solvent from contaminants solvent, together with the piping and ductwork used in the installation of this device.

(10) "Washer" means a machine which agitates fabric articles in a petroleum solvent bath and spins the articles to remove the solvent, together with the piping and ductwork used in the installation of this device.

c. Standards for volatile organic compounds.

(1) Each affected petroleum solvent drycleaning dryer that is installed at a petroleum drycleaning plant shall be a solvent recovery dryer. The solvent recovery dryers must be properly installed, operated, and maintained.

(2) Each affected petroleum solvent filter that is installed at a petroleum drycleaning plant must be a cartridge filter. Cartridge filters shall be drained in their sealed housing for at least eight hours prior to their removal.

(3) Each manufacturer of an affected petroleum solvent dryer shall include leak inspection and leak repair cycle information in the operating manual and on a clearly visible label posted on each affected facility. Such information should state:

To protect against fire hazards, loss of valuable solvents, and emissions of solvent to the atmosphere, periodic inspection of this equipment for evidence of leaks and prompt repair of any leaks is recommended. The department recommends that the equipment be inspected every fifteen days and all vapor or liquid leaks be repaired within the subsequent fifteen-day period.

d. Equivalent equipment and procedures.

(1) Upon written application from any person, the department and administrator may approve the use of equipment or procedures that have been demonstrated to its satisfaction to be equivalent, in terms of reducing volatile organic compounds emissions to the atmosphere, to those prescribed for compliance within a specified paragraph of this subsection. The application must contain a complete description of the equipment or procedure; the testing method; the date, time, and location of the test; and a description of the test results.

(2) The department and administrator will make a preliminary determination of whether or not the application for equivalency is approvable and will publish a notice of these findings. After notice and opportunity for public hearing, the department and administrator will publish the final determination.

e. Test methods and procedures. Each owner or operator of an affected facility subject to the provisions of paragraph 1 of subdivision c shall perform an initial test to verify that the flow rate of recovered solvent from the solvent recovery dryer at the termination of the recovery cycle is no greater than 0.05 liters per minute. This test must be conducted for a duration of no less than two weeks during which no less than fifty percent of the dryer loads must be monitored for their final recovered solvent flow rate. The suggested point for measuring the flow rate of recovered solvent is from the outlet of the solvent-water separator.

Near the end of the recovery cycle, the entire flow of recovered solvent should be diverted to a graduated cylinder. As the recovered solvent collects in the graduated cylinder, the elapsed time is monitored and recorded in periods of greater than or equal to one minute. At the same time, the volume of solvent in the graduated cylinder is monitored and recorded to determine the volume of recovered solvent that is collected during each time period. The recovered solvent flow rate is calculated by dividing the volume of solvent collected per period by the length of time elapsed during the period and converting the result with appropriate factors into units of liters per minute. The recovery cycle and the monitoring procedure should continue until the flow rate of solvent is less than or equal to 0.05 liter per minute. The type of articles cleaned and the total length of the cycle should then be recorded.

f. Each owner or operator of an affected facility subject to the provisions of this subsection shall maintain a record of the performance test required under subdivision e.

History: Amended effective February 1, 1982; October 1, 1987; January 1, 1989.
General Authority: NDCC 23-25-03, 28-32-01
Law Implemented: NDCC 23-25-03

30. Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems.

a. Applicability and designation of affected facility.

(1) The provisions of this subsection apply to affected facilities located in petroleum refineries for which construction,

modification, or reconstruction is commenced after May 4, 1987.

(a) An individual drain system is a separate affected facility.

(b) An oil-water separator is a separate affected facility.

(c) An aggregate facility is a separate affected facility.

(2) Notwithstanding the provisions of paragraph 2 of subdivision e of subsection 12 of section 33-15-12-01, the construction or installation of a new individual drain system shall constitute a modification to an affected facility described in subparagraph e of paragraph 1 of this subdivision a. For purposes of this paragraph, a new individual drain system must be limited to all process drains and the first common junction box.

b. Definitions. As used in this subsection, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 and in subsection 2 of section 33-15-12-01.

(1) "Active service" means that a drain is receiving refinery wastewater from a process unit that will continuously maintain a water seal.

(2) "Aggregate facility" means an individual drain system together with ancillary downstream sewer lines and oil-water separators, down to and including the secondary oil-water separator, as applicable.

(3) "Catch basin" means an open basin which serves as a single collection point for stormwater runoff received directly from refinery surfaces and for refinery wastewater from process drains.

(4) "Closed vent system" means a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission source to a control device.

(5) "Completely closed drain system" means an individual drain system that is not open to the atmosphere and is equipped and operated with a closed vent system and control devices complying with the requirements of subdivision g.

(6) "Control device" means an enclosed combustion device, vapor recovery system, or flare.

(7) "Fixed roof" means a cover that is mounted to a tank or chamber in a stationary manner and which does not move with fluctuations in wastewater levels.

(8) "Floating roof" means a pontoon-type or double-deck-type cover that rests on the liquid surface.

(9) "Gastight" means operated with no detectable emissions.

(10) "Individual drain system" means all process drains connected to the first common downstream junction box. The term includes all such drains and common junction box, together with their associated sewer lines and other junction boxes, down to the receiving oil-water separator.

(11) "Junction box" means a manhole or access point to a wastewater sewer system line.

(12) "No detectable emissions" means less than five hundred parts per million above background levels, as measured by a detection instrument in accordance with method 21 in appendix A of this chapter.

(13) "Noncontact cooling water system" means a once-through drain, collection and treatment system designed and operated for collecting cooling water which does not come into contact with hydrocarbons or oily wastewater and which is not recirculated through a cooling tower.

(14) "Oil-water separator" means wastewater treatment equipment used to separate oil from water consisting of a separation tank, which also includes the forebay and other separator basins, skimmers, weirs, grit chambers, and sludge hoppers. Slop oil facilities, including tanks, are included in this term along with storage vessels and auxiliary

equipment located between individual drain systems and the oil-water separator. This term does not include storage vessels or auxiliary equipment which do not come in contact with or store oil wastewater.

(15) "Oily wastewater" means wastewater generated during the refinery process which contains oil, emulsified oil, or other hydrocarbons. Oily wastewater originates from a variety of refinery processes including cooling water, condensed stripping steam, tank draw off, and contact process water.

(16) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

(17) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through the distillation of petroleum, or through the redistillation of petroleum, cracking, or reforming unfinished petroleum derivatives.

(18) "Sewer line" means a lateral, truck line, branch line, ditch, channel, or other conduit used to convey refinery wastewater to downstream components of a refinery wastewater treatment system. This term does not include buried, below-grade sewer lines.

(19) "Slop oil" means the floating oil and solids that accumulate on the surface of an oil-water separator.

(20) "Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, including oily wastewater.

(21) "Stormwater sewer system" means a drain and collection system designed and operated for the sole purpose of collecting stormwater and which is segregated from the process wastewater collection system.

(22) "Wastewater system" means any component, piece of equipment, or installation that receives, treats, or processes oily wastewater from petroleum refinery process units.

(23) "Water seal controls" means a seal pot, p-leg trap, or other type of trap filled with water

that has a designed capacity to create a waste barrier between the sewer and the atmosphere.

c. Standards -General.

(1) Each owner or operator subject to the provisions of this subsection shall comply with the requirements of subdivisions c, d, e, f, g, and with j and k, except during periods of startup, shutdown, or malfunction.

(2) Compliance with subdivisions c, d, e, f, g, and with j and k, will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in subdivision n.

(3) Permission to use alternative means of emission limitation to meet the requirements of subdivisions d, e, and f may be granted as provided in subdivision l.

(4) (a) Stormwater sewer systems are not subject to the requirements of this subsection.

(b) Ancillary equipment, which is physically separate from the wastewater system and does not come in contact with or store oily wastewater, is not subject to the requirements of this subsection.

(c) Noncontact cooling water systems are not subject to the requirements of this subsection.

(d) An owner or operator shall demonstrate compliance with the exclusions in subparagraphs a, b, and c of paragraph 4 of this subdivision as provided in paragraphs 8, 9, and 10 of subdivision o.

d. Standards - Individual drain systems.

(1) (a) Each drain must be equipped with water seal controls.

(b) Each drain in active service must be checked by visual or physical inspection initially and monthly thereafter for indications of low water levels or other conditions that would reduce the effectiveness of the water seal controls.

(c) Except as provided in subparagraph d of paragraph 1 of this subdivision, each drain out of active service must be checked by visual or physical inspection initially and weekly thereafter for indications of low water levels or other problems that could result in volatile organic compound (VOC) emissions.

(d) As an alternative to the requirements in subparagraph c of paragraph 1 of this subdivision, if an owner or operator elects to install a tightly sealed cap or plug over a drain that is out of service, inspections must be conducted initially and semiannually to ensure caps or plugs are in place and properly installed.

(e) Whenever low water levels or missing or improperly installed caps or plugs are identified, water must be added or first efforts at repair must be made as soon as practicable, but no later than twenty-four hours after detection, except as provided in subdivision h.

(2) (a) Junction boxes must be equipped with a cover and may have an open vent pipe. The vent pipe must be at least ninety centimeters [3 feet] in length and may not exceed 10.2 centimeters [4 in] in diameter.

(b) Junction box covers must have a tight seal around the edge and must be kept in place at all times, except during inspection and maintenance.

(c) Junction boxes must be visually inspected initially and semiannually thereafter to ensure that the cover is in place and to ensure that the cover has a tight seal around the edge.

(d) If a broken seal or gap is identified, first effort at repair must be made as soon as practicable, but not later than fifteen calendar days after the broken seal or gap is identified, except as provided in subdivision h.

(e) [1] Sewer lines may not be open to the atmosphere and must be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces.

[2] The portion of each unburied sewer line must be visually inspected initially and semiannually thereafter for indication of cracks, gaps, or other problems that could result in volatile organic compound (VOC) emissions.

[3] Whenever cracks, gaps, or other problems are detected, repairs must be made as soon as practicable, but not later than fifteen calendar days after identification, except as provided in subdivision h.

(f) Except as provided in paragraph 5 of this subdivision, each modified or reconstructed individual drain system that has a catch basin in the existing configuration prior to May 4, 1987, must be exempt from the provisions of this subsection.

(g) Refinery wastewater routed through new process drains and a new first common downstream junction box, either as part of a new individual drain system or an existing individual drain system, may not be routed through a downstream catch basin.

e. Standards - Oil-water separators.

(1) Each oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment subject to the requirements of this subsection must be equipped and operated with a fixed roof, which meets the following specifications, except as provided in paragraph 4 of this subdivision or in subdivision k.

(a) The fixed roof must be installed to completely cover the separator tank, slop oil tank, storage vessel, or other auxiliary equipment with no separation between the roof and the wall.

(b) The vapor space under a fixed roof may not be purged unless the vapor is directed to a control device.

(c) If the roof has access doors or openings, such doors or openings must be gasketed, latched, and kept closed at all times during operation of the separator system, except during inspection and maintenance.

(d) Roof seals, access doors, and other openings must be checked by visual inspection initially and semiannually thereafter to ensure that no cracks or gaps occur between the roof and wall and that access doors and other openings are closed and gasketed properly.

(e) When a broken seal or gasket or other problem is identified, first efforts at repair must be made as soon as practicable, but not later than fifteen calendar days after it is identified, except as provided in subdivision h.

(2) Each oil-water separator tank or auxiliary equipment with a design capacity to treat more than sixteen liters per second [250 gpm] of refinery wastewater must, in addition to the requirements in paragraph 1 of this subdivision be equipped and operated with a closed vent system and control device, which meets the requirements of subdivision g, except as provided in paragraph 3 of this subdivision or in subdivision k.

(3) (a) Each modified or reconstructed oil-water separator tank with a maximum design capacity to treat less than thirty-eight liters per second [600 gpm] of refinery wastewater which was equipped and operated with a fixed roof covering the entire separator tank or a portion of the separator tank prior to May 4, 1987, is exempt from the requirements of paragraph 2 of this subdivision, but shall meet the requirements of paragraph 1 of this subdivision, or may elect to comply with subparagraph b.

(b) The owner or operator may elect to comply with the requirements of paragraph 1 of this subdivision for the existing fixed roof covering a portion of the separator tank and comply with the requirements for floating roofs in subdivision k for the remainder of the separator tank.

(4) Storage vessels, including slop oil tanks and other auxiliary tanks that are subject to the requirements of subsections 9, 10, and 11 of section 33-15-12-04, are not subject to the requirements of this subdivision.

(5) Slop oil from an oil-water separator tank and oily wastewater from slop oil handling equipment must be collected, stored, transported, recycled, reused, or disposed of in an enclosed system. Once slop oil is returned to the process unit or is disposed of, it is no longer within the scope of this subsection. Equipment used in handling slop oil must be equipped with a fixed roof meeting the requirements of paragraph 1 of this subdivision.

(6) Each oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment that is required to comply with paragraph 1 of this subdivision may be equipped with a pressure control valve as necessary for proper system operation. The pressure control valve must be set at the maximum pressure necessary for proper system operation, but such that the valve will not vent continuously.

f. Standards - Aggregate facility. A new, modified, or reconstructed aggregate facility shall comply with the requirements of subdivisions d and e.

g. Standards - Closed vent systems and control devices.

(1) Enclosed combustion devices must be designed and operated to reduce the volatile organic compound (VOC) emissions vented to them with an efficiency of ninety-five percent or greater or to provide a minimum residence time of 0.75 seconds at a minimum temperature of eight hundred sixteen degrees Celsius [1,500°F].

(2) Vapor recovery systems (for example, condensers and adsorbers) must be designed and operated to recover the volatile organic compound (VOC) emissions vented to them with an efficiency of ninety-five percent or greater.

(3) Flares used to comply with this subsection must comply with the requirements of subsection 14 of section 33-15-12-01.

(4) Closed vent systems and control devices used to comply with provisions of this subsection must be operated at all times when emissions may be vented to them.

(5) (a) Closed vent systems must be designed and operated with no detectable emissions, as indicated by an instrument reading of less than five hundred parts per million above background, as determined during the initial and semiannual inspections by the methods specified in subdivision n.

(b) Closed vent systems must be purged to direct vapor to the control device.

(c) A flow indicator must be installed on a vent stream to a control device to ensure that the vapors are being routed to the device.

(d) All gauging and sampling devices must be gas-tight except when gauging or sampling is taking place.

(e) When emissions from a closed system are detected, first efforts at repair to eliminate the emissions must be made as soon as practicable, but not later than thirtycalendar days from the date the emissions are detected, except as provided in subdivision h.

h. Standards - Delay of repair.

(1) Delay of repair of facilities that are subject to the provisions of this subsection will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown.

(2) Repair of such equipment must occur before the end of the next refinery or process unit shutdown.

i. Standards - Delay of compliance.

(1) Delay of compliance of modified individual drain systems with ancillary downstream

treatment components will be allowed if compliance with the provisions of this subsection cannot be achieved without a refinery or process unit shutdown.

(2) Installation of equipment necessary to comply with the provisions of this subsection must occur no later than the next scheduled refinery or process unit shutdown.

j. Alternative standards for individual drain systems.

(1) An owner or operator may elect to construct and operate a completely closed drain system.

(2) Each completely closed drain system must be equipped and operated with a closed vent system and control device complying with the requirements of subdivision g.

(3) An owner or operator must notify the department in the report required in subsection 6 of section 33-15-12-01 that the owner or operator has elected to construct and operate a completely closed drain system.

(4) If an owner or operator elects to comply with the provision of this subdivision, then the owner or operator does not need to comply with the provisions of subdivisions d or l.

(5) (a) Sewer lines may not be open to the atmosphere and must be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces.

(b) The portion of each unburied sewer line must be visually inspected initially and semiannually thereafter for indication of cracks, gaps, or other problems that could result in volatile organic compound (VOC) emissions.

(c) Whenever cracks, gaps, or other problems are detected, repairs must be made as soon as practicable, but not later than fifteen calendar days after identification, except as provided in subdivision h.

k. Alternative standards for oil-water separators.

(1) An owner or operator may elect to construct and operate a floating roof on an oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment subject to the requirements of this subsection which meets the following specifications:

(a) Each floating roof must be equipped with a closure device between the wall of the separator and the roof edge. The closure device is to consist of a primary seal and a secondary seal.

[1] The primary seal must be liquid-mounted seal.

[a] A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the separator and the floating roof.

[b] The gap width between the primary seal and the separator wall may not exceed 3.8 centimeters [1.5 in] at any point.

[c] The total gap area between the primary seal and the separator wall may not exceed sixty-seven centimeters squared per meter [3.2 in^2/ft] of separator wall perimeter.

[2] The secondary seal must be above the primary seal and cover the annular space between the floating roof and the wall of the separator.

[a] The gap width between the secondary seal and the separator wall may not exceed 1.3 centimeters [0.5 in] at any point.

[b] The total gap area between the secondary seal and the separator wall may not exceed 6.7 centimeters squared per meter [0.32 in^2/ft] of separator wall perimeter.

[3] The maximum gap width and total gap area must be determined by the methods and procedures specified in paragraph 4 of subdivision n.

[a] Measurement of primary seal gaps must be performed within sixty calendar days after initial installation of the floating roof and introduction of refinery wastewater and once every five years thereafter.

[b] Measurement of secondary seal gaps must be performed within sixty calendar days of initial introduction of refinery wastewater and once every year thereafter.

[4] The owner or operator shall make necessary repairs within thirty calendar days of identification of seals not meeting the requirements listed in items 1 and 2 of subparagraph a of paragraph 1 of this subdivision.

(b) Except as provided in subparagraph d of paragraph 1 of this subdivision, each opening in the roof must be equipped with a gasketed cover, seal, or lid, which shall be maintained in a closed position at all times, except during inspection and maintenance.

(c) The roof must be floating on the liquid (i.e., off the roof supports) at all times except during abnormal conditions (i.e., low flow rate).

(d) The floating roof may be equipped with one or more emergency roof drains for removal of stormwater. Each emergency roof drain must be fitted with a slotted membrane fabric cover that covers at least ninety percent of the drain opening area or a flexible fabric sleeve seal.

(e) [1] Access doors and other openings must be visually inspected initially and semiannually thereafter to ensure that there is a tight fit around the edges and to identify other problems that could result in volatile organic compound (VOC) emissions.

[2] When a broken seal or gasket on an access door or other opening is identified, it must be repaired as soon as practicable, but not later than thirty calendar days after it is identified, except as provided in subdivision h.

(2) An owner or operator shallnotify the department in the report required by subsection 6 of section 33-15-12-01 that the owner or operator has elected to construct and operate a floating roof under paragraph 1 of this subdivision.

(3) For portions of the oil-water separator tank where it is infeasible to construct and operate a floating roof, such as the skimmer mechanism and weirs, a fixed roof meeting the requirements of paragraph 1 of subdivision e must be installed.

(4) Except as provided in paragraph 3 of this subdivision, if an owner or operator elects to comply with the provisions of this subsection, then the owner or operator does not need to comply with the provisions of subdivision e or subdivision l applicable to the same facilities.

l. Permission to use alternative means of emission limitation.

(1) If, in the department's and administrator's judgment, an alternative means of emission limitation will achieve a reduction in volatile organic compound (VOC) emissions at least equivalent to the reduction in volatile organic compound (VOC) emissions achieved by the applicable requirement in subdivisions c, d, e, f, g, h, and i, the department and administrator will publish a notice permitting the use of the alternative means for purposes of compliance with that requirement. The notice may condition the permission on requirements related to the operation and maintenance of the alternative means.

(2) Any notice under paragraph 1 of this subdivision must be published only after notice and an opportunity for a hearing.

(3) Any person seeking permission under this subdivision shall collect, verify, and submit to the department information showing that the alternative means achieves equivalent emission reductions.

m. Monitoring of operations.

(1) Each owner or operator subject to the provisions of this subsection shall install, calibrate, maintain, and operate according to manufacturer's specifications the following equipment unless alternative monitoring procedures or requirements are approved for that facility by the department.

(a) Where a thermal incinerator is used for volatile organic compound (VOC) emission reduction, a temperature monitoring device equipped with a continuous recorder must be used to measure the temperature of the gas stream in the combustion zone of the incinerator. The temperature monitoring device must have an accuracy of one percent of the temperature being measured in degrees Celsius or plus or minus 0.5 degrees Celsius [±1.0°F], whichever is greater.

(b) Where a catalytic incinerator is used for volatile organic compound (VOC) emission reduction, temperature monitoring devices, each equipped with a continuous recorder, must be used to measure the temperature in the gas stream immediately before and after the catalyst bed of the incinerator. The temperature monitoring devices must have an accuracy of one percent of the temperature being measured in degrees Celsius or plus or minus 0.5 degrees Celsius [±1.0°F], whichever is greater.

(c) Where a carbon adsorber is used for volatile organic compound (VOC) emissions reduction, a monitoring device that continuously indicates and records the volatile organic compound (VOC) concentration level or reading of organics in the exhaust gases of the control device outlet gas stream or inlet and outlet gas stream must be used.

(d) Where a flare is used for volatile organic compound (VOC) emission reduction, the owner or operator shall comply with the monitoring requirements of paragraph 2 of subdivision f of subsection 14 of section 33-15-12-01.

(2) Where a volatile organic compound (VOC) recovery device other than a carbon adsorber is used to meet the requirements specified in paragraph 1 of subdivision g, the owner or operator shall provide to the department information describing the operation of the control device and the process parameters that would indicate proper operation and maintenance of the device. The department may request further information and will specify appropriate monitoring procedures or requirements.

(3) 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.

n. Performance test methods and procedures and compliance provisions.

(1) Before using any equipment installed in compliance with the requirements of subdivisions d, e, f, g, or j, and k, the owner or operator shall inspect such equipment for indications of potential emissions, defects, or other problems that may cause the requirements of this subsection not to be met. Points of inspection must include, but are not limited to, seals, flanges, joints, gaskets, hatches, caps, and plugs.

(2) The owner or operator of each source that is equipped with a closed vent system and control device as required in subdivision g (other than a flare) is exempt from subsection 7 of section 33-15-12-01 and shall use Method 21 to measure the emission concentrations, using five hundred parts per million as the no detectable emission limit. The instrument must be calculated each day before using. The calibration gases must be:

(a) Zero air (less than 10 ppm of hydrocarbon in air); and

(b) A mixture of either methane or n-hexane and air at a concentration of approximately, but less than, ten thousand parts per million methane or n-hexane.

(3) The owner or operator shall conduct a performance test initially, and at other times as required by the department, using the test methods and procedures in paragraph 2 of subdivision g of subsection 14 of section 33-15-12-01 to determine compliance of flares.

(4) After installing the control equipment required to meet paragraph 1 of subdivision k or whenever sources that have ceased to treat refinery wastewater for a period of one year or more are placed back into service, the owner or operator shall determine compliance with the standards in paragraph 1 of subdivision k as follows:

(a) The maximum gap widths and maximum gap areas between the primary seal and the separator wall and between the secondary seal and the separator wall must be determined individually within sixty calendar days of the initial installation of the floating roof and introduction of refinery wastewater or sixty calendar days after the equipment is placed back into service using the following procedure when the separator is filled to the design operating level and when the roof is floating off the roof supports.

[1] Measure seal gaps around the entire perimeter of the separator in each place where a 0.32-centimeter [0.125-in] diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the separator and measure the gap width and perimetrical distance of each such location.

[2] The total surface area of each gap described in item 1 of subparagraph a of paragraph 4 of this subdivision

must be determined by using probes of various widths to measure accurately the actual distance from the wall to the seal and multiplying each such width by its respective perimetrical distance.

[3] Add the gap surface area of each gap location for the primary seal and the secondary seal individually, divide the sum for each seal by the nominal perimeter of the separator basin and compare each to the maximum gap area as specified in subdivision k.

(b) The gap widths and total gap area must be determined using the procedure in subparagraph a of paragraph 4 of this subdivision.

[1] For primary seals, once every five years.

[2] For secondary seals, once every year.

o. Recordkeeping requirements.

(1) Each owner or operator of a facility subject to the provisions of this subsection shall comply with the recordkeeping requirements of this section. All records must be retained for a period of two years after being recorded unless otherwise noted.

(2) (a) For individual drain systems subject to subdivision d, the location, date, and corrective action must be recorded for each drain when the water seal is dry or otherwise breached, when a drain cap or plug is missing or improperly installed, or other problem is identified that could result in volatile organic compound (VOC) emissions, as determined during the initial and periodic visual or physical inspection.

(b) For junction boxes subject to subdivision d, the location, date, and corrective action must be recorded for inspections required by paragraph 2 of subdivision d when a broken seal, gap, or other problem is identified that could result in volatile organic compound (VOC) emissions.

(c) For sewer lines subject to subdivision d and paragraph 5 of subdivision j, the location, date, and corrective action must be recorded for inspections required by paragraph 3 of subdivision d and paragraph 5 of subdivision j when a problem is identified that could result in volatile organic compound (VOC) emissions.

(3) For oil-water separators subject to subdivision e, the location, date, and corrective action must be recorded for inspections required by paragraph 1 of subdivision e when a problem is identified that could result in volatile organic compound (VOC) emissions.

(4) For closed vent systems subject to subdivision g and completely closed drain systems subject to subdivision j, the location, date, and corrective action must be recorded for inspections required by paragraph 5 of subdivision g, during which detectable emissions are measured or a problem is identified that could result in volatile organic compounds (VOC) emissions.

(5) (a) If an emission point cannot be repaired or corrected without a process unit shutdown, the expected date of a successful repair must be recorded.

(b) The reason for the delay as specified in subdivision h must be recorded if an emission point or equipment problem is not repaired or connected in the specified amount of time.

(c) The signature of the owner or operator (or designee) whose decision it was that repair could not be affected without refinery or process shutdown must be recorded.

(d) The date of successful repair or corrective action must be recorded.

(6) (a) A copy of all design specifications for all equipment used to comply with the provisions of this subsection must be

kept for the life of the source in a readily accessible location.

(b) The following information pertaining to the design specifications must be kept.

[1] Detailed schematics, and piping and instrumentation diagrams.

[2] The dates and descriptions of any changes in the design specifications.

(c) The following information pertaining to the operation and maintenance of closed drain systems and closed vent systems must be kept in a readily accessible location.

[1] Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions must be kept for the life of the facility. This documentation is to include a general description of the gas streams that enter the control device, including flow and volatile organic compound (VOC) content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of eight hundred sixteen degrees Celsius (1,500°F) is used to meet the 95-percent requirement, documentation that those conditions exist is sufficient to meet the requirements of this paragraph.

[2] A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria used for selection of that parameter (or parameters) must be kept for the life of the facility.

[3] Periods when the closed vent systems and control devices required in subdivisions c, d, e, f, g, h, and i are not operated as designed, including periods when a flare pilot does not have a flame must be recorded and kept for two years after the information is recorded.

[4] Dates of startup and shutdown of the closed vent system and control devices required in subdivisions c, d, e, f, g, h, and i must be recorded and kept for two years after the information is recorded.

[5] The dates of each measurement of detectable emission required in subdivisions c through k must be recorded and kept for two years after the information is recorded.

[6] The background level measured during each detectable emissions measurement must be recorded and kept for two years after the information is recorded.

[7] The maximum instrument reading measured during each detectable emission measurement must be recorded and kept for two years after the information is recorded.

[8] Each owner or operator of an affected facility that uses a thermal incinerator shall maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all three-hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than twenty-eight degrees Celsius [50°F] below the design combustion zone temperature, and shall keep such records for two years after the information is recorded.

[9] Each owner or operator of an affected facility that uses a

catalytic incinerator shall maintain continuous records of the temperature of the gas stream both upstream and downstream of the catalyst bed of the incinerator, records of all three-hour periods of operation during which the average temperature measured before the catalyst bed is more than twenty-eight degrees Celsius [50°F] below the design gas stream temperature, and records of all three-hour periods during which the average temperature difference across the catalyst bed is less than eighty percent of the design temperature difference, and shall keep such records for two years after the information is recorded.

[10] Each owner or operator of an affected facility that uses a carbon adsorber shall maintain continuous records of the volatile organic compound (VOC) concentration level or reading of organics of the control device outlet gas stream or inlet and outlet gas stream and records of all three-hour periods of operation during which the average volatile organic compound (VOC) concentration level or reading of organics in the exhaust gases, or inlet and outlet gas stream, is more than twenty percent greater than the design exhaust gas concentration level, and shall keep such records for two years after the information is recorded.

(7) If an owner or operator elects to install a tightly sealed cap or plug over a drain that is out of active service, the owner or operator shall keep for the life of a facility in a readily accessible location, plans or specifications which indicate the location of such drains.

(8) For stormwater sewer systems subject to the exclusion in subparagraph a of paragraph 4 of subdivision c, an owner or operator shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that no wastewater from any

process units or equipment is directly discharged to the stormwater sewer system.

(9) For ancillary equipment subject to the exclusion in subparagraph b of paragraph 4 of subdivision c, an owner or operator shall keep for the life of a facility in a readily accessible location, plans or specifications which demonstrate that the ancillary equipment does not come in contact with or store oil wastewater.

(10) For noncontact cooling water systems subject to the exclusion in subparagraph c of paragraph 4 of subdivision c, an owner or operator shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that the cooling water does not contact hydrocarbons or oily wastewater and is not recirculated through a cooling tower.

p. Reporting requirements.

(1) An owner or operator electing to comply with the provisions of subdivisions j and k shall notify the department of the alternative standard selected in the report required in subsection 6 of section 33-15-12-01.

(2) (a) Each owner or operator of a facility subject to this subsection shall submit to the department within sixty days after initial startup a certification that the equipment necessary to comply with these standards has been installed and that the required initial inspections or tests of process drains, sewer lines, junction boxes, oil-water separators, and closed vent systems and control devices have been carried out in accordance with these standards. Thereafter, the owner or operator shall submit to the department semiannually a certification that all of the required inspections have been carried out in accordance with these standards.

(b) Each owner or operator of an affected facility that uses a flare shall submit to the department within sixty days after the initial startup, as required under subdivision a of subsection 7 of section 33-15-12-01, a report of the results of the performance test required in paragraph 3 of subdivision n.

(3) A report that summarizes all inspections when a water seal was dry or otherwise breached, when a drain cap or plug was missing or improperly installed, or when cracks, gaps, or other problems were identified that could result in volatile organic compound (VOC) emissions, including information about the repairs or corrective action taken, must be submitted initially and semiannually thereafter to the department.

(4) As applicable, a report must be submitted semiannually to the department that indicates:

(a) Each three-hour period of operation during which the average temperature of the gas stream in the combustion zone of a thermal incinerator, as measured by the temperature monitoring device, is more than twenty-eight degrees Celsius [50°F] below the design combustion zone temperature;

(b) Each three-hour period of operation during which the average temperature of the gas stream immediately before the catalyst bed of a catalytic incinerator, as measured by the temperature monitoring device, is more than twenty-eight degrees Celsius [50°F] below the design gas stream temperature, and any three-hour period during which the average temperature difference across the catalyst bed (i.e., the difference between the temperatures of the gas stream immediately before and after the catalyst bed), as measured by the temperature monitoring device, is less than eight percent of the design temperature difference; or

(c) Each three-hour period of operation during which the average volatile organic compound (VOC) concentration level or reading of organics in the exhaust gases from a carbon adsorber is more than twenty percent greater than the design exhaust gas concentration level or reading.

(5) If compliance with the provisions of this subsection is delayed pursuant to subdivision i, the notification required under paragraph 4 of subdivision a of subsection 6 of section 33-15-12-01 must include the estimated date of the next scheduled refinery or process unit shutdown after the date of notification and the reason why compliance with the standards is technically impossible without a refinery or process unit shutdown.

History: Amended effective February 1, 1982; October 1, 1987; January 1, 1989; June 1, 1990.

General Authority: NDCC 23-25-03, 28-32-01

Law Implemented: NDCC 23-25-03

APPENDIX A - REFERENCE METHODS

The reference methods specified within chapter 33-15-12 are identical to those specified in appendix A, as amended, of Title 40 Code of Federal Regulations, Part 60 (40 CFR 60).

APPENDIX B - PERFORMANCE SPECIFICATIONS

The performance specifications specified within chapter 33-15-12 are identical to those specified in appendix B Part 60 and appendix E Part 52, as amended, of Title 40 of the Code of Federal Regulations.

APPENDIX C - DETERMINATION OF EMISSION RATE CHANGE

The determination of emission rate change method is identical to that specified in appendix C Part 60, as amended, of Title 40 of the Code of Federal Regulations.

APPENDIX D - [RESERVED]

APPENDIX E - [RESERVED]

APPENDIX F - QUALITY ASSURANCE PROCEDURES

The quality assurance procedures are identical to that specified in appendix F Part 60, as amended, of Title 40 of the code of Federal Regulations.

CHAPTER 33-15-13
EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Section

33-15-13-01	General Provisions
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33-15-13-04	Emission Standard for Beryllium Rocket Motor Firing
33-15-13-05	Emission Standard for Mercury
33-15-13-06	Emission Standard for Vinyl Chloride
33-15-13-07	Emission Standard for Equipment Leaks (Fugitive Emissions Sources) of Benzene
33-15-13-08	Emission Standard for Equipment Leaks (Fugitive Emission Sources)

33-15-13-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to the owner or operator of any stationary source for which a standard is prescribed under this chapter.

2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in section 33-15-01-04. Terms defined, both in this subsection and in section 33-15-01-04, shall have the meaning given them in this subsection:

    a. "Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference method or an equivalent method but which has been demonstrated to the department's and administrator's satisfaction to produce results adequate for the department's and administrator's determination of compliance.

    b. "Capital expenditure" means an expenditure for a physical or operational change to a stationary source which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of internal revenue service publication 534 and the stationary source's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to a stationary source must not be reduced by any "excluded additions" as defined for stationary sources constructed after December 31, 1981, in internal revenue service publication 534, as would be done for tax purposes. In addition, "annual asset guideline repair allowance" may be used even though it is excluded for tax purposes in internal revenue service publication 534.

c. "Commenced" means that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

d. "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with the standards of this chapter and with any steps toward such compliance which are set forth under subsection 9.

e. "Construction" means fabrication, erection, or installation of an affected facility.

f. "Effective date" is the date of promulgation in this article of an applicable standard or other limitation under this chapter.

g. "Existing source" means any stationary source which is not a new source.

h. "Monitoring system" means any system, required under the monitoring sections in applicable sections, used to sample and condition (if applicable), to analyze, and to provide a record of emissions or process parameters.

i. "New source" means any stationary source, the construction or modification of which is commenced after February 9, 1976.

j. "Owner or operator" means any person who owns, leases, operates, controls, or supervises a stationary source.

k. "Reference method" means any method of sampling and analyzing for an air pollutant, as described in appendix B to this chapter.

l. "Run" means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.

m. "Standard" means an emission standard including a design, equipment, work practice, or operational standard for a hazardous air pollutant promulgated under this chapter.

n. "Startup" means the setting in operation of a stationary source for any purpose.

o. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant which has been designated as hazardous by the department or the United States environmental protection agency.

3. **Abbreviations.** The abbreviations used in this chapter have the same meanings as found in subsection 3 of section 33-15-12-01.

4. **Prohibited activities.**

a. After the effective date of any standard prescribed under this chapter, no owner or operator may construct or modify any stationary source subject to such standard without first obtaining a permit to construct from the department, except under an exemption granted by the president under section 112(c)(2) of the Federal Clean Air Act.

b. After the effective date of any standard prescribed under this chapter, no owner or operator may operate any new source in violation of such standard except under an exemption granted by the president under section 112(c)(2) of the Federal Clean Air Act.

c. Ninety days after the effective date of any standard prescribed under this chapter, no owner or operator may operate any existing stationary source in violation of such standard, except under a permit to operate with an attached compliance schedule granted by the department pursuant to subdivision b of subsection 8 or under an exemption granted by the president under section 112(c)(2) of the Federal Clean Air Act.

d. No owner or operator subject to the provisions of this chapter may fail to report, revise reports, or report source test results as required under this chapter.

5. **Determination of construction or modification.** An owner or operator may submit to the department and administrator a written application for a determination of whether actions intended to be taken by such owner or

operator constitute construction or modification or the commencement thereof of a source subject to a standard. The department and administrator will, within thirty days of receipt of sufficient information to evaluate an application, notify the owner or operator of its determination.

6. **Application for permit to construct.** The owner or operator of any new source to which a standard prescribed under this chapter is applicable, prior to the date on which construction or modification is planned to commence, shall apply for and receive a permit to construct as provided in section 33-15-14-02.

7. **Notification of startup.** Any owner or operator of a source which has an initial startup date after the effective date of a standard prescribed under this chapter shall furnish the department written notification as follows:

   a. A notification of the anticipated date of initial startup of the source not more than sixty days nor less than thirty days prior to such date.

   b. A notification of the actual date of initial startup of the source within fifteen days after such date.

8. **Source reporting and application for permit to operate.**

   a. The owner or operator of any existing source, or any new source which had an initial startup date before the effective date of a standard shall provide, within ninety days after the effective date, the following information in writing to the department:

      (1) Name and address of the owner or operator.

      (2) The location of the source.

      (3) The type of hazardous pollutants emitted by the stationary source.

      (4) A brief description of the nature, size, design, and method of operation of the stationary source including the operating design capacity of such source and identifying each point of emission for each hazardous pollutant.

      (5) The average weight per month of the hazardous materials being processed by the source, over the last twelve months preceding the date of the report.

(6) A description of the existing control equipment for each emission point, including:

   (a) Each control device for each hazardous pollutant.

   (b) Estimated control efficiency (percent) for each control device.

(7) A statement by the owner or operator of the source as to whether the source can comply with the standards within ninety days of the effective date.

b. The owner or operator of an existing source unable to operate in compliance with any standard prescribed under this chapter may request the department to grant a permit to operate with an attached compliance schedule requiring compliance with the standard within two years of the effective date of such standard. Any request must be in writing and must include the following information:

(1) A description of the controls to be installed to comply with the standard.

(2) A compliance schedule, listing the date each step toward compliance will be reached. The list must include as a minimum the following dates:

   (a) Date by which contracts for emission control systems or process modifications will be awarded, or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification.

   (b) Date of initiation of onsite construction or installation of emission control equipment or process change.

   (c) Date by which onsite construction or installation of emission control equipment or process modification is to be completed.

   (d) Date by which final compliance is to be achieved.

(3) A description of interim emission control steps which will be taken during the compliance schedule period.

c. Changes in the information provided under subdivision a or subsection 6 must be provided to the department within thirty days after such change, except that if changes will result in modification of the source, the provisions of subsection 6 are applicable.

d. The format for reporting under this subsection is included as appendix A to this chapter. Advice on reporting the status of compliance may be obtained from the department.

9. **Permit and compliance schedule.**

a. Based on the information provided in any request under subsection 8, or other information, the department may grant a permit to operate with an attached compliance schedule not exceeding two years from the effective date of such standard.

b. Such permit will be in writing and will, as a minimum:

(1) Identify the stationary source covered.

(2) Specify the date upon which the standard is to be met. The permit may be revoked or suspended if the standard is not met by the date specified or if the conditions specified under paragraph 3 are not met.

(3) Specify dates by which steps toward compliance are to be taken, and impose such additional conditions as the department determines to be necessary to assure installation of the necessary controls within the compliance schedule period and to assure protection of the health of persons during such period.

c. Prior to denying any request for a permit pursuant to this subsection, the department will notify the owner or operator making such request of the department's intention to issue such denial, together with:

(1) Notice of the information and findings on which such intended denial is based.

(2) Notice of opportunity for such owner or operator to present, within such time limit as the department specifies, additional information or arguments to the department prior to final action on such request.

d. A final determination to deny any request for a permit under this subsection will be in writing and will set forth the specific grounds on which such denial is based. Such final determination will be made within sixty days after presentation of additional information or arguments, or within sixty days after the final date specified for such presentation, if no presentation is made.

e. The granting of a permit under this subsection does not abrogate the department's authority under section 33-15-01-05, subsection 9 of section 33-15-14-02, and subsection 6 of section 33-15-14-03.

10. **Compliance with standards and maintenance requirements.**

a. Compliance with numerical emission limits must be determined by emission tests established in subsection 11 unless otherwise specified in an individual section.

b. Compliance with design, equipment, work practice, or operational standards must be determined as specified in an individual section.

c. The owner or operator of each stationary source shall maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the department which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the source.

d. (1) If, in the administrator and department's judgment, an alternative means of emission limitation will achieve a reduction in emissions of a pollutant from a source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice, or operational standard, the department will publish a notice permitting the use of the alternative means for purposes of compliance with the standard. The notice will restrict the permission to the sources or categories of sources on which the alternative means will achieve equivalent emission reductions. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

(2) Any notice under paragraph 1 shall be published only after notice and an opportunity for a hearing.

(3) Any person seeking permission under this subsection shall submit, unless otherwise specified in the applicable section, a proposed test plan or the results of testing and monitoring, a description of the procedures followed in testing or monitoring, and a description of pertinent conditions during testing or monitoring.

11. **Emission tests and waiver of emission tests.**

a. If required to do emission testing by an applicable section and unless a waiver of emission testing is obtained under this subsection, the owner or operator shall test emissions from the source:

(1) Within ninety days after the effective date, for an existing source or a new source which has an initial startup date before the effective date; or

(2) Within ninety days after initial startup, for a new source which has an initial startup date after the effective date.

b. The department may require an owner or operator to test emissions from the source at any other time.

c. The owner or operator shall notify the department of the emission test at least thirty days before the emission tests to allow the department the opportunity to have an observer present during the test.

d. If required to do emission testing, the owner or operator of each new source and, at the request of the department, the owner or operator of each existing source shall provide emission testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to each source.

(2) Safe sampling platforms.

(3) Safe access to sampling platforms.

(4) Utilities for sampling and testing equipment.

(5) Any other facilities that the department needs to safely and properly test a source.

e. Each emission test must be conducted under such conditions as the department shall specify based on design and operational characteristics of the source.

f. Unless otherwise specified in an applicable section, samples must be analyzed and emissions determined within thirty days after each emission test has been completed. The owner or operator shall report the determinations of the emission test to the department by registered letter sent before the close of business on the thirty-first day following the completion of the emission test.

g. The owner or operator shall retain at the source and make available, upon request, for inspection by the department, for a minimum of two years, records of emission test results and other data needed to determine emissions.

h. (1) Emission tests must be conducted as set forth in this subsection, the applicable section and appendix B unless the department specifies or approves the use of a reference method with minor changes in methodology, or the department and administrator:

(a) Approves the use of an alternative method; or

(b) Waives the requirement for emission testing because the owner or operator of a source has demonstrated by other means to the department's satisfaction that the source is in compliance with the standard.

(2) If the department finds reasonable grounds to dispute the results obtained by an alternative method, the department may require the use of a reference method. If the results of the reference and alternative methods do not agree, the results obtained by the reference method prevail.

(3) The owner or operator may request approval for the use of an alternative method at any time, except:

(a) For an existing source or a new source that had an initial startup before the effective date, any request for use of an alternative method during the initial emission test must be submitted to the department within thirty days after the effective date, or with the request for a permit with compliance schedule if one is submitted under subsection 8.

(b) For a new source that has an initial startup after the effective date, any request for use of an alternative method during the initial emission test must be submitted to the department no later than with the notification of anticipated startup required under subsection 7.

i. (1) Emission tests may be waived upon written application to the department if, in its judgment, the source is meeting the standard, or if the source is operating under a permit granted under subsection 9 or has requested such permit.

(2) If application for waiver of the emission test is made, such application must accompany the information required by subsection 8. The appropriate form is contained in appendix A to this chapter.

(3) Approval of any waiver granted pursuant to this subsection does not abrogate the department's authority under North Dakota Century Code chapter 23-25 or in any way prohibit the department from later canceling such waiver. Such cancellation will be made only after notice is given to the owner or operator of the source.

12. **Monitoring requirements.**

a. Unless otherwise specified, this subsection applies to each monitoring system required under each section which requires monitoring.

b. Each owner or operator shall maintain and operate each monitoring system as specified in the applicable section and in a manner consistent with good air pollution control practice for minimizing emissions. Any unavoidable breakdown or malfunction of the monitoring system should be repaired or adjusted as soon as practicable after its occurrence. The department's determination of whether acceptable operating and maintenance procedures are being used will be based on information which may include, but not be limited to, review of operating and maintenance procedures, manufacturer recommendations and specifications, and inspection of the monitoring system.

c. When required by the applicable section, and at any other time the department may require, the owner or operator of a source being monitored shall conduct a performance evaluation of the monitoring system and furnish the department with a copy of a written report of the results within sixty days of the evaluation. Such a performance evaluation must be conducted according to the applicable specifications and procedures described in the applicable section. The owner or operator of the source shall furnish the department with written notification of the date of the performance evaluation at least thirty days before the evaluation is to begin.

d. When the effluents from a single source, or from two or more sources subject to the same emission standards, are combined before being released to the atmosphere, the owner or operator shall install a monitoring system on each effluent or on the combined effluent. If two or more sources are not subject to the same emission standards, the owner or operator shall install a separate monitoring system on each effluent, unless otherwise specified. If the applicable standard is a mass emission standard and the effluent from one source is released to the atmosphere through more than one point, the owner or operator shall install a monitoring system at each emission point unless the installation of fewer systems is approved by the department.

e. The owner or operator of each monitoring system shall reduce the monitoring data as specified in each applicable section. Monitoring data recorded during periods of unavoidable monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in any data average.

f. The owner or operator shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records must be maintained at the source for a minimum of two years and made available, upon request, for inspection by the department.

g. (1) Monitoring must be conducted as set forth in this subsection and applicable section unless the department:

(a) Specifies or approves the use of the specified monitoring requirements and procedures with minor changes in methodology; or

(b) Approves the use of alternatives to any monitoring requirements or procedures.

(2) If the department finds reasonable grounds to dispute the results obtained by an alternative monitoring method, the department may require the monitoring requirements and procedures specified in this subsection.

13. **Modification.**

a. Except as provided under subdivision d, any physical or operational change to a stationary source which results in an increase in the rate of emission to the atmosphere of a hazardous pollutant to which a standard applies must be considered a modification.

b. Upon modification, an existing source shall become a new source for each hazardous pollutant for which the rate of emission to the atmosphere increases and to which a standard applies.

c. Emission rate must be expressed as kilograms per hour or any hazardous pollutant discharged into the atmosphere for which a standard is applicable. The department shall use the following to determine the emission rate:

(1) Emission factors as specified in the background information document (BID) for the applicable standard, or in the latest issue of "Compilation of Air Pollutant Emission Factors", environmental protection agency publication number AP-42, or other emission factors determined by the department to be superior to AP-42 emission factors, in cases where use of emission factors demonstrates that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change.

(2) Material balances, monitoring data, or manual emission tests in cases where use of emission factors, as referenced in paragraph 1, does

not demonstrate to the department's satisfaction that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change, or where an interested person demonstrates to the department's satisfaction that there are reasonable grounds to dispute the result obtained by the department using emission factors. When the emission rate is based on results from manual emission tests or monitoring data, the procedures specified in appendix C of chapter 33-15-12 must be used to determine whether an increase in emission rate has occurred. Tests must be conducted under such conditions as the department shall specify to the owner or operator. At least three test runs must be conducted before and at least three after the physical or operational change. If the department approves, the results of the emission tests required in subsection 11 may be used for the test runs to be conducted before the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum degree feasible for all test runs.

d. The following may not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the department determines to be routine for a source category.

(2) An increase in production rate of a stationary source, if that increase can be accomplished without a capital expenditure on the stationary source.

(3) An increase in the hours of operation.

(4) Any conversion to coal that meets the requirements specified in section 111(a)(8) of the Clean Air Act.

(5) The relocation or change in ownership of a stationary source. However, such activities must be reported in accordance with subdivision c of subsection 8.

14. **Availability of information.**

a. Emission data provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public.

b. Any records, reports, or information, other than emission data, provided to, or otherwise obtained by, the department in accordance with the provisions of this chapter shall be available to the public, except that upon a showing satisfactory to the department by any person that such records, reports, or information, or particular part thereof (other than emission date), if made public, would divulge methods or processes entitled to protection as trade secrets of such person, the department will consider such records, reports, or information, or particular part thereof, confidential in accordance with the purposes of section 1905 of title 18 of the United States Code, except that such records, reports, or information, or particular part thereof, may be disclosed to other officers, employees, or authorized representatives of the state and federal government concerned with carrying out the provisions of North Dakota Century Code chapter 23-25 or when relevant in any proceeding under North Dakota Century Code chapter 23-25.

15. **Circumvention.** No owner or operator subject to the provisions of this chapter may build, erect, install, or use any article, machine, equipment, process, or method, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with a visible emissions standard, and the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.

History: Amended effective February 1, 1982; October 1, 1987; January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-13-02. Emission standard for asbestos.

1. Applicability. The provisions of this section are applicable to those sources specified in subsections 3 through 16.

2. Definitions. All terms that are used in this section and are not defined below are given the same meaning as in North Dakota Century Code chapter 23-25 and in section 33-15-13-01.

a. "Active waste disposal site" means any disposal site other than an inactive site.

b. "Adequately wetted" means sufficiently mixed or coated with amended water, or an aqueous solution to prevent dust emissions.

c. "Asbestos" means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, and actinolite-tremolite.

d. "Asbestos abatement" means any demolition, renovation, salvage, repair, or construction activity which involves the repair, enclosure, encapsulation, removal, handling, or disposal~~,~~ ~~and inspection~~ of more than three square feet [0.28 square meters] or three linear feet [0.91 meters] of friable asbestos material~~,~~ ~~and~~. Asbestos abatement also means any inspections, preparation of management plans, and abatement project design for both friable and nonfriable asbestos material.

e. "Asbestos abatement project designer" means any person who develops the plans, specifications, and designs for an asbestos abatement project.

f. "Asbestos abatement supervisor" means any person who provides supervision and direction to workers engaged in asbestos removal, encapsulation, enclosure, and repair. Supervisors may include those individuals with the position title of foreman, working foreman, or leadman pursuant to collective bargaining agreements.

g. "Asbestos-containing waste material" means any waste that contains commercial asbestos and is generated by a source subject to the provisions of this section. This term includes asbestos mill tailings, asbestos waste from control devices, friable asbestos waste material, and bags or containers that previously contained commercial asbestos. ~~However,~~ ~~as~~ As applied to demolition and renovation operations, this term includes only friable asbestos waste and asbestos waste from control devices.

h. "Asbestos contractor" means any partnership, firm, association, operation, or sole proprietorship that contracts to perform asbestos abatement for another.

i. "Asbestos inspector" means any person who inspects facilities for asbestos-containing materials.

j. "Asbestos management planner" means any person who develops facility plans for the management of asbestos-containing materials.

k. "Asbestos material" means asbestos or any material containing greater than one percent asbestos.

l. "Asbestos mill" means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos materials is not considered a part of the asbestos mill.

m. "Asbestos tailings" means any solid waste that contains asbestos and is a product of asbestos mining or milling operations.

n. "Asbestos waste from control devices" means any waste material that contains asbestos and is collected by a pollution control device.

o. "Asbestos worker" means ~~any person engaged in asbestos abatement except at the person's~~ an employee or agent of an asbestos contractor, or a public employee engaged in the abatement of more than three square feet [0.28 square meters] or three linear feet [0.91 meters] of friable asbestos material, except for individuals engaged in abatement at their private residence.

p. "Commercial asbestos" means any asbestos that is extracted from asbestos ore.

q. "Demolition" means the wrecking or taking out of any load-supporting structural member of a facility, together with any related handling operations.

r. "Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event. This term includes operations necessitated by nonroutine failures of equipment.

s. "Encapsulation" means a method of asbestos abatement that includes the treatment of asbestos-containing materials with a sealant material that completely surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers. A bridging encapsulant creates a membrane over the surface while a penetrating encapsulant penetrates the material and binds the material's components together.

t. "Enclosure" means a method of asbestos abatement that includes the construction of a permanent, airtight, impermeable barrier around asbestos-containing material to prevent the release of asbestos fibers into the air.

u. "Fabricating" means any processing of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites for the construction or restoration of facilities.

v. "Facility" means any institutional, commercial, or industrial structure, installation, or building (excluding apartment buildings having no more than four dwelling units).

w. "Facility component" means any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility; or any structural member of a facility.

x. "Friable asbestos material" means any material containing more than one percent asbestos ~~by weight~~ that hand pressure or mechanical forces expected to act on the material can crumble, pulverize, or reduce to powder when dry.

y. "Inactive waste disposal site" means any disposal site or portion of it where additional asbestos-containing waste material will not be deposited and where the surface is not disturbed by vehicular traffic.

z. "Manufacturing" means the combining of commercial asbestos, or in the case of woven friction products, the combining of textiles containing commercial asbestos, with any other materials, including commercial asbestos, and the processing of this combination into a product.

aa. "Outside air" means the air outside buildings and structures.

bb. "Particulate asbestos material" means finely divided particles of asbestos material.

cc. "Planned renovation operations" means a renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

dd. "Public employee" for the purpose of this chapter means any person employed by the U.S. Government or the State of North Dakota or any of its political subdivisions who provides service for which compensation is paid. This includes employment by appointment or election.

~~dd.~~ee. "Remove" means to take out friable asbestos materials from any facility.

~~ee.~~ff. "Repair" means returning damaged asbestos-containing materials to an undamaged condition or to an intact state so as to prevent asbestos fiber release.

~~ff.~~gg. "Renovation" means altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

~~gg.~~hh. "Roadways" means surfaces on which motor vehicles travel. This term includes highways, roads, streets, parking areas, and driveways.

~~hh.~~ii. "Strip" means to take off friable asbestos materials from any part of any facility.

~~ii.~~jj. "Structural member" means any load-supporting member of a facility, such as beams and load-supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

~~jj.~~kk. "Visible emissions" means any emissions containing asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

3. **Standard for asbestos mills.** Each owner or operator of an asbestos mill shall discharge no visible emissions to the outside air from that asbestos mill and use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

4. **Standard for roadways.** No person may surface a roadway with asbestos tailings or asbestos-containing waste material.

5. **Standard for manufacturing.**

a. Applicability. This section applies to the following manufacturing operations using commercial asbestos.

(1) The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving, lap, or other textile materials.

(2) The manufacture of cement products.

(3) The manufacture of fireproofing and insulating materials.

(4) The manufacture of friction products.

(5) The manufacture of paper, millboard, and felt.

(6) The manufacture of floor tile.

(7) The manufacture of paints, coatings, caulks, adhesives, and sealants.

(8) The manufacture of plastics and rubber materials.

(9) The manufacture of chlorine.

(10) The manufacture of shotgun shell wads.

(11) The manufacture of asphalt concrete.

b. Standard. Each owner or operator of any of the manufacturing operations to which this section applies shall either:

(1) Discharge no visible emissions to the outside air from these operations or from any building or structure in which they are conducted; or

(2) Use the methods specified by subsection 13 to clean emissions containing asbestos material from these operations before they escape to, or are vented to, the outside air.

6. Standard for demolition and renovation.

a. Applicability. The requirements of subdivisions b and c apply to each owner or operator of an asbestos demolition or renovation operation, as follows:

(1) For any demolition or renovation project involving the stripping or removal of friable asbestos materials, all the procedure

requirements of subdivision c apply, except for ordered demolitions as provided in paragraph 4.

(2) If there are any friable asbestos materials present in a demolition project, all the notification requirements of subdivision b apply.

(3) If at least one hundred sixty square feet [14.9 square meters] of friable asbestos material on facility components or at least two hundred sixty linear feet [79.3 meters] of friable asbestos material on pipes or a total of at least thirty-five cubic feet [1 cubic meter] of friable asbestos-containing material on or off all facility components are stripped or removed at a facility being renovated, all the notification requirements of subdivision b apply.

(a) To determine whether this paragraph applies to planned renovation operations involving individual nonscheduled operations, predict the additive amount of friable asbestos material to be removed or stripped over the maximum period of time a prediction can be made, not to exceed one year.

(b) To determine whether this paragraph applies to emergency renovation operations, estimate the amount of friable asbestos materials to be removed or stripped as a result of the sudden unexpected event that necessitated the renovation.

(4) If the facility is being demolished under an order of a state or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, only the requirements of subdivision b and paragraphs 4, 5, 6, and 7 of subdivision c apply.

(5) Owners or operators of demolition or renovation operations are exempt from the requirements of subdivision a of subsection 4, subsection 6, and subsection 7 of section 33-15-13-01.

b. Notification requirements. Each owner or operator to which this section applies shall:

(1) Provide the department with written notice of the intention to demolish or renovate.

(2) Postmark or deliver the notice as follows:

  (a) At least ten days before demolition begins, except as provided in subparagraph b.

  (b) As early as possible before demolition begins if the operation is described in paragraph 4 of subdivision a.

  (c) At least ten days before renovation begins. When necessary, the department may accept a telephone notification followed by the written notice.

  (d) Within forty-eight hours after the beginning of an emergency renovation operation.

(3) Include the following information on a notification form provided by the department:

  (a) Name and address of owner or operator.

  (b) Description of the facility being demolished or renovated, including the size, age, and prior use of the facility.

  (c) An ~~e~~Estimate of the ~~approximate~~ amount of friable asbestos material present in the facility in terms of square feet, linear feet or cubic feet, as appropriate.

  (d) Location of the facility being demolished or renovated.

  (e) Scheduled starting and completion dates of demolition or renovation.

  (f) Nature of planned demolition or renovation and methods to be used.

  (g) Procedures to be used to comply with the requirements of this section.

  (h) The name and location of the waste disposal site where the friable asbestos waste will be deposited.

(i) For facilities described in paragraph 4 of subdivision a, the name, title, and authority of state or local governmental representative who has ordered the demolition.

(j) A signed statement by the contractor that all asbestos abatement supervisors and asbestos workers assigned to this project are certified by the department, in accordance with subsection 16.

c. Procedures for asbestos emission control. Each owner or asbestos contractor to whom this subsection applies shall comply with the following procedures to prevent visible emissions of asbestos material outside the work area:

(1) Remove friable asbestos materials from a facility being demolished or renovated before any wrecking or dismantling that would break up the materials or preclude access to the materials for subsequent removal. However, friable asbestos materials need not be removed before demolition if:

(a) They are on a facility component that is encased in concrete or other similar material; and

(b) These materials are adequately wetted whenever exposed during demolition to ensure that they remain wet until they are collected for disposal in accordance with subsection 11.

(2) When a facility component covered or coated with friable asbestos materials is being taken out of the facility as units or in sections:

(a) Adequately wet any friable asbestos materials exposed during cutting or disjointing operations; and

(b) Carefully wrap or otherwise contain the facility member with an impermeable covering prior to the disjoining operation; and

(c) Carefully lower the units or sections to ground level, not dropping them or throwing them.

(3) Adequately wet friable asbestos materials when they are being stripped from facility components before the members are removed from the facility. In renovation operations,

wetting that would unavoidably damage equipment is not required if the owner or operator:

(a) Asks the department to determine whether wetting to comply with this paragraph would unavoidably damage equipment, and, before beginning to strip, supplies the department with adequate information to make this determination; and

(b) When the department does determine that equipment damage would be unavoidable, uses a local exhaust ventilation and collection system designed and operated to capture the asbestos material produced by the stripping and removal of the friable asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in subsection 13.

(4) After a facility component has been taken out of the facility as units or in sections, either:

(a) Adequately wet friable asbestos materials during stripping; or

(b) Use a local exhaust ventilation and collection system designed and operated to capture the asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in subsection 13.

(5) For friable asbestos materials that have been removed or stripped:

(a) Adequately wet the materials to ensure that they remain wet until they are collected for disposal in accordance with subsection 11;

(b) Carefully lower the materials to the ground or a lower floor, not dropping or throwing them; and

(c) Transport the materials to the ground via dust tight chutes or containers if they have been removed or stripped more than fifty feet [15.24 meters] above ground level and were not removed as units or in sections.

(6) When the temperature at the point of wetting is below zero degrees Celsius [32 degrees Fahrenheit]:

(a) Comply with the requirements of paragraphs 4 and 5. The owner or operator need not comply with the other wetting requirements in this section; and

(b) Remove facility components coated or covered with friable asbestos materials as units or in sections to the maximum extent possible.

(7) For facilities described in paragraph 4 of subdivision a, adequately wet the portion of the facility that contains friable asbestos materials during the wrecking operation.

(8) When a friable asbestos demolition or renovation project is conducted in the ambient air, the owner or operator shall designate the boundaries of the work area by appropriate means.

7. **Standard for spraying.** The owner or operator of an operation in which asbestos-containing materials are spray applied shall use only those materials that contain one percent asbestos or less for spray-on application on buildings, structures, pipes, and conduits.

8. **Standard for fabricating.**

a. Applicability. This subsection applies to the following fabricating operations using commercial asbestos:

(1) The fabrication of cement building products.

(2) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.

(3) The fabrication of cement or silicate board for ventilation hoods; ovens; electrical panels; laboratory furniture; bulkheads, partitions, and ceilings for marine construction; and flow control devices for the molten metal industry.

b. Standard. Each owner or operator of any of the fabricating operations to which this subsection applies shall either:

(1) Discharge no visible emissions to the outside air from any of the operations or from any building or structure in which they are conducted; or

(2) Use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

9. **Standard for insulating materials.** After October 1, 1987, no owner or operator of a facility may install or reinstall on a facility component any insulating materials that contain commercial asbestos if the materials are either molded and friable or wet applied and friable after drying. The provisions of this subsection do not apply to spray-applied insulating materials regulated under subsection 7.

10. **Standard for waste disposal for asbestos mills.** Each owner or operator of any source covered under the provisions of subsection 3 shall:

a. Deposit all asbestos-containing waste material at department approved waste disposal sites operated in accordance with the provisions of subsection 15.

b. Discharge no visible emissions to the outside air from the transfer of asbestos waste from control devices to the tailings conveyor, or use the methods specified by subsection 13 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air. Dispose of the asbestos waste from control devices in accordance with subdivision b of subsection 11 or subdivision c.

c. Discharge no visible emissions to the outside air during the collection, processing, packaging, transporting, or deposition of any asbestos-containing waste material, or use one of the disposal methods as follows:

(1) Use a wetting agent as follows:

(a) Adequately mix all asbestos-containing waste material with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, before depositing the material at a waste disposal site. Use the agent as recommended for the particular dust by the manufacturer of the agent.

(b) Discharge no visible emissions to the outside air from the wetting operation or use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

(2) Use an alternative disposal method that has received prior approval by the department and administrator.

11. **Standard for waste disposal for manufacturing, demolition, renovation, and fabricating operations.** **Each owner or operator of any source covered under any of the provisions of subsection 5, 6, or 8 shall:**

a. Deposit all asbestos-containing waste material at department approved waste disposal sites operated in accordance with the provisions of subsection 15.

b. Discharge no visible emissions to the outside air during the collection processing (including incineration), packaging, transporting, or deposition of any asbestos-containing waste material generated by the source, or use one of the disposal methods as follows:

(1) Treat asbestos-containing waste material with water:

(a) Mix asbestos waste from control devices with water to form a slurry; adequately wet other asbestos-containing waste material.

(b) Discharge no visible emissions to the outside air from collection, mixing, and wetting operations, or use the methods specified by subsection 13 to clean emissions containing asbestos material before they escape to, or are vented to, the outside air.

(c) After wetting, seal all asbestos-containing waste material in leak-tight containers while wet.

(d) Label the containers specified in subparagraph c as follows:

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

Alternatively, use warning labels currently specified by occupational safety and health standards of the department of labor, occupational safety and health administration (OSHA) under 29 CFR 1910.1001 or 29 CFR 1926.58.

(2) Process asbestos-containing waste material into nonfriable forms:

   (a) Form all asbestos-containing waste material into nonfriable pellets or other shapes.

   (b) Discharge no visible emissions to the outside air from collection and processing operations, or use the methods specified by subsection 13 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(3) Use an alternative disposal method that has received prior approval by the department and administrator.

c. All facilities used for the temporary storage of asbestos-containing waste material in leak-tight containers must be controlled:

(1) Post a warning sign at the entrances to the temporary storage facility with label as follows:

DANGER

ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

Alternatively, use warning labels currently specified by occupational safety and health standards of the department of labor, occupational safety and health administration (OSHA) under 29 CFR 1910.1001 or 29 CFR 1926.58.

(2) Take necessary precautions to prevent or restrict access to that temporary storage facility.

(3) The temporary storage facility must be inspected at least once per week to ensure that good structural integrity of the storage facility is maintained and that the facility remains secure.

(4) The maximum length of time allowed for temporary storage of an asbestos-containing waste material may not exceed one hundred eighty days.

d. Recordkeeping of all asbestos-containing waste material must be maintained:

(1) Prior to transportation of ~~any~~ more than three square feet or three linear feet of asbestos-containing waste material, the transporter shall ensure that a manifest form has been completed and signed by the generator, except as provided in paragraph 4 of this subdivision.

(2) The manifest form must include the following information:

(a) Name and address of the facility owner or operator where the source of asbestos-containing waste materials were generated.

(b) Location of the facility where asbestos-containing waste material was generated.

(c) Estimated quantity of asbestos-containing waste material which may include the total number of containers or the total weight.

(d) Name and location of the waste disposal site where the asbestos-containing waste will be deposited.

(e) Information including, but not limited to, the name~~s~~ of the supervisor and employer~~s~~ of the persons loading the asbestos-containing waste material into leak-tight containers, the name~~s~~ and employer~~s~~ of the transporter, and the name~~s~~ and employer~~s~~ of the landfill site operator, including the signatures of these persons and the dates of transaction.

(3) A copy of the completed manifest form must be submitted to the department by the owner or operator of the facility no later than ten days after the asbestos-containing waste material has been received by a landfill operator.

(4) If an acceptable disposal site, as determined by subsection 15, is located on the same property as the facility where asbestos-containing waste materials were generated, then the recordkeeping requirements of subdivision d of this subsection do not apply. The owner shall maintain records which include information on the quantity, location, and date of asbestos-containing waste disposal activities.

12. **Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations.**

Each owner or operator of any inactive waste disposal site that was operated by sources covered under subsection 3, 5, or 8 and received deposits of asbestos-containing waste material generated by the sources, shall:

a. Comply with one of the following:

(1) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this subsection;

(2) Cover the asbestos-containing waste material with at least fifteen centimeters [6 inches] of compacted non-asbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material;

(3) Cover the asbestos-containing waste material with at least sixty centimeters [2 feet] of compacted non-asbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste; or

(4) For inactive waste disposal sites for asbestos tailings, apply a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Use the agent as recommended for the particular asbestos tailings by the manufacturer of the dust suppression agent. Obtain prior approval of the department to use other equally effective

dust suppression agents. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.

b. Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with paragraph 2 or 3 of subdivision a.

(1) Display warning signs at all entrances and at intervals of three hundred twenty-eight feet [100 meters] or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(a) Be posted in such a manner and location that a person can easily read the legend.

(b) Conform to the requirements for fifty-one centimeters by thirty-six centimeters [20 inches by 14 inches] upright format signs specified in 29 CFR 1910.145(d)(4) and this subdivision.

(c) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm [1 inch] Sans Serif, Gothic, or Block
Avoid Creating Dust	1.9 cm [3/4 inch] Sans Serif Gothic, or Block
Breathing Asbestos Dust May Cause Lung Disease and Cancer	14 Point Gothic

Spacing between any two lines must be at least equal to the height of the upper two lines.

(2) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(3) Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier

adequately deters access by the general public.

c. The owner or operator may use an alternative control method that has received prior approval of the department and administrator rather than comply with the requirements of subdivision a or b.

13. **Air-cleaning.**

a. The owner or operator who elects to use air-cleaning, as permitted in subsections 3, 5, 6, 7, 8, 10, and 11 shall:

 (1) Use fabric filter collection devices except as noted in subdivision b, doing all of the following:

  (a) Operating the fabric filter collection devices at a pressure drop of no more than .995 kilopascal [4 inches water gauge], as measured across the filter fabric.

  (b) Ensuring that the airflow permeability, as determined by A.S.T.M. method D737-75, does not exceed nine $m^3/min/m^2$ [30 $ft^3/min/ft^2$] for woven fabrics or eleven $m^3/min/m^2$ [35 $ft^3/min/ft^2$] for felted fabrics, except that twelve $m^3/min/m^2$ [40 $ft^3/min/ft^2$] for woven and fourteen $m^3/min/m^2$ [45 $ft^3/min/ft^2$] for felted fabrics is allowed for filtering air from asbestos ore dryers.

  (c) Ensuring that felted fabric weighs at least four hundred seventy-five grams per square meter [14 ounces per square yard] and is at least one and six-tenths millimeters [1/16 inch] thick throughout.

  (d) Avoiding the use of synthetic fabrics that contain fill yarn other than that which is spun.

 (2) Properly install, use, operate, and maintain all air-cleaning equipment authorized by this subsection. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the asbestos material.

b. There are the following exceptions to paragraph 1 of subdivision a:

(1) If the use of fabric creates a fire or explosion hazard, the department may authorize as a substitute the use of wet collectors designed to operate with a unit contacting energy of at least 9.95 kilopascals [40 inches water gauge pressure].

(2) The department and administrator may authorize the use of filtering equipment other than that described in paragraph 1 of subdivision a and paragraph 1 of subdivision b if the owner or operator demonstrates to the administrator and department's satisfaction that it is equivalent to the described equipment in filtering asbestos material.

14. **Reporting.**

a. Within ninety days after February 9, 1976, each owner or operator of any existing source to which this section applies shall provide the following information to the department:

(1) A description of the emission control equipment used for each process.

(2) If a fabric filter device is used to control emissions, the pressure drop across the fabric filter in inches water gauge.

(a) If the fabric filter device uses a woven fabric, the airflow permeability in $m^3/min/m^2$ and; if the fabric is synthetic, whether the fill yarn is spun or not spun.

(b) If the fabric filter device uses a felted fabric, the density in g/m^2, the minimum thickness in inches, and the airflow permeability in $m^3/min/m^2$.

(3) For sources subject to subsections 10 and 11:

(a) A brief description of each process that generates asbestos-containing waste material.

(b) The average weight of asbestos-containing waste material disposed of, measured in kilograms per day.

(c) The emission control methods used in all stages of waste disposal.

(d) The type of disposal site or incineration site used for ultimate disposal, the name of the site operator, and the name and location of the disposal site.

(4) For sources subject to subsection 12:

(a) A brief description of the site.

(b) The method or methods used to comply with the standard, or alternative procedures to be used.

b. The information required by subdivision a must accompany the information required by subsection 8 of section 33-15-13-01. The information described in this section must be reported using the format of appendix A.

15. **Active waste disposal sites.** To be an acceptable site for disposal of asbestos-containing waste material under subsections 10 and 11, an active waste disposal site must meet the requirements of this subsection. Until the requirements of this subsection have been met, care shall be exercised by the disposal site owner or operator, or both, to avoid rupturing leak-tight containers containing asbestos waste, and to avoid crumbling or pulverizing nonfriable asbestos-containing waste material.

a. Either there shall be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of subdivisions c and d must be met.

b. Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as follows, or the requirements of paragraph 1 of subdivision c must be met.

(1) Warning signs must be displayed at all entrances and at intervals of three hundred twenty-eight feet [100 meters] or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(a) Be posted in such a manner and location that a person may easily read the legend.

(b) Conform to the requirements of fifty-one centimeters by thirty-six centimeters [20 inches by 14 inches] upright format signs specified in 29 CFR 1910.145(d)(4) and this subsection.

(c) Display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm [1 inch] Sans Serif, Gothic, or Block.
Avoid Creating Dust	1.9 cm [3/4 inch] Sans Seri Gothic, or Block
Breathing Asbestos Dust May Cause Lung Disease and Cancer	14 Point Gothic

Spacing between lines must be at least equal to the height of the upper two lines.

(2) The perimeter of the disposal site must be fenced in order to adequately deter access to the general public.

(3) Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access by the general public.

c. Rather than meet the requirements of subdivision a, an active waste disposal site would be an acceptable site if at the end of each operating day, or at least once every twenty-four-hour period while the site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous twenty-four-hour period is covered with either:

(1) At least fifteen centimeters [6 inches] of compacted nonasbestos-containing material; or

(2) A resinous or petroleum-based dust suppression agent that effectively binds dust and controls

wind erosion. This agent must be used as recommended for the particular dust by the manufacturer of the dust suppression agent. Other equally effective dust suppression agents may be used upon prior approval by the department. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.

d. Rather than meet the requirements of subdivision a, an active waste disposal site would be an acceptable site if an alternative control method for emissions that has received prior approval by the department and administrator is used.

16. **Asbestos abatement licensing and certification.** No public employees or employees of asbestos contractors ~~or their workers~~ shall engage in any asbestos abatement activity unless ~~he or she is~~ they are certified with the department as provided in this subsection. All asbestos contractors must be licensed with this department, as provided in this subsection, prior to beginning asbestos abatement activities. At least one person having completed the requirements for supervisor certification of subdivision b of this subsection is required to be at the worksite at all times while work is in progress, if the work involves repair, removal, encapsulation, enclosure or handling of friable asbestos material. Certification of individuals must be for a period of one year from the completion date of the initial training course or the last refresher course in the appropriate discipline.

a. Asbestos workers. ~~Beginning January 1, 1989, a~~All asbestos workers employed by asbestos abatement contractors and all public employees engaged in the ~~carrying out~~ repair, removal, enclosure, ~~or~~ encapsulation ~~activities,~~ or handling of friable asbestos material, must obtain certification as outlined in all paragraphs of this subdivision except as provided in ~~paragraph 8,~~ subdivision h.

(1) Application. Any applicant desiring certification as an asbestos worker shall make an application to the department on forms supplied by the department. Each application shall be accompanied by a nonrefundable fee of twenty-five dollars~~,~~ except as provided in subdivision g. ~~which will~~ This fee includes the processing of the ~~required~~ initial examination specified in paragraph 3 of this subdivision.

(2) Initial training. Any applicant desiring certification as an asbestos worker shall have completed the initial training requirements for asbestos worker accreditation under 40 CFR part 763, appendix C to subpart E - Environmental Protection Agency model contractor accreditation plan, by attending and successfully completing a training course designed for asbestos workers. ~~that has~~ The training course must have received approval from the Environmental Protection Agency or the department.

~~Exception. Any asbestos worker who has attended an approved training course and passed an exam associated with that course since May 31, 1987, and prior to January 1, 1989, will receive full accreditation. The asbestos worker shall complete the refresher training requirements of paragraph 4 of this subdivision prior to January 1, 1990.~~

(3) Examination. Any applicant for certification shall pass a written examination administered by the department. The department may ~~approve~~ accept proof of successful completion of an examination administered by an Environmental Protection Agency or department approved training course ~~center, provided that~~ provider. ~~t~~The examination and the results of ~~that~~ the examination ~~are received by~~ must be available to the department upon request. ~~Each~~ Any applicant who fails to obtain a minimum seventy percent passing score on the examination shall be eligible to take a ~~second~~ subsequent examination no earlier than one week following the previous examination. A twenty-five dollar fee is required for each examination. No more than three examinations may be given before requiring attendance of another initial training course. ~~All additional exams shall each require the submittal of a twenty-five dollar fee.~~ Information concerning the testing arrangements can be obtained from the department.

(4) Refresher training. Any asbestos worker who has received initial training and has established full certification with the department, and who wishes to maintain continuous certification, shall complete a refresher training course as required by the model contractor accreditation plan within one

year of ~~receiving full certification~~ completing the initial training course. The course content shall include, but not be limited to, ~~information specific to asbestos workers,~~ a review of the changes in federal and state regulations, a discussion of the developments in state-of-the-art procedures and equipment as well as an overview of key aspects of the initial training course. Thereafter, the asbestos worker shall complete a refresher course within one year of the last refresher course.

(5) Certification renewal. Any asbestos worker who desires to renew their certification ~~for an additional year~~ must have attended a refresher training course within twelve months prior to submittal of the renewal application. The renewal application shall include proof of attendance at such course and a~~n~~ ~~annual~~ recertification fee of twenty-five dollars. If an asbestos worker does not satisfy the refresher training requirements of this subdivision within two years of the ~~anniversary~~ date of the ~~certification~~ initial training course or of the last refresher training course, then the individual shall complete the initial training requirements provided in paragraph 2 of this subdivision to reestablish full certification.

~~(6) Interim certification. Any asbestos worker who has attended an approved training course and passed an exam associated with that course since January 1, 1985, and prior to June 1, 1987, will receive interim certification. This interim certification shall be valid until January 1, 1990. The asbestos worker shall complete the initial training requirements as outlined in paragraph (2) of this subsection prior to January 1, 1990, to become fully certified. The asbestos worker must submit an application to the department on forms supplied by the department and accompanied by a nonrefundable fee of twenty-five dollars to receive interim certification.~~

(~~7~~6) The certification card issued by the department must be available at the worksite for each asbestos worker.

~~(8) Any person engaged in carrying out repair, removal, enclosure, or encapsulation activities involving less than or equal to three square feet or three linear feet of~~

~~asbestos-containing materials, is exempt from the certification requirements of this subdivision.~~

b. ~~Asbestos contractor.~~ Other asbestos disciplines. ~~Beginning January 1, 1989, a~~Any individual, except asbestos workers, acting as or acting on behalf of an asbestos contractor who performs an asbestos abatement service must obtain certification as outlined in all paragraphs of this subdivision. This certification requirement applies to ~~asbestos contractors and~~ asbestos abatement supervisors, ~~as well as to asbestos consultant disciplines including~~ asbestos inspectors, asbestos management planners, ~~and~~ asbestos abatement project designers, and to public employees performing these duties except as provided in subdivision h.

(1) Application. Any person ~~who performs an asbestos abatement service an asbestos contractor,~~ desiring certification in the disciplines of asbestos inspector, asbestos management planner, asbestos abatement project designer, and asbestos abatement supervisor shall make an application to the department on forms supplied by the department. Each application shall be accompanied by a nonrefundable fee of twenty-five dollars for each discipline within which the applicant is seeking certification~~,~~ except as provided in subdivision g. ~~which~~ This fee includes the processing of the initial examination specified in paragraph 3 of this subdivision.

(2) Initial training. Any applicant desiring certification as an ~~asbestos contractor,~~ asbestos inspector, asbestos management planner, asbestos abatement project designer, or asbestos abatement supervisor shall have completed the initial training requirements ~~for those respective disciplines~~ set forth in 40 CFR part 763, appendix C to subpart E - Environmental Protection Agency model contractor accreditation plan, by attending and successfully completing a training course in the appropriate discipline. ~~designed for those respective disciplines that has~~ The training course must have received approval in the respective discipline from the Environmental Protection Agency or the department. For the purpose of certification, the four-day asbestos abatement supervisor training course will fulfill the training requirements for asbestos abatement project designer.

~~Exception: Any individual who has attended an approved training course in the disciplines of asbestos contractor, asbestos inspector, asbestos management planner, asbestos abatement project designer, or asbestos abatement supervisor and passed an exam associated with that course since May 31, 1987, and prior to January 1, 1989, will receive full accreditation in their respective discipline. The individual shall complete the refresher training requirements of paragraph 4 of this subdivision prior to January 1, 1990.~~

An applicant may be certified for more than one discipline provided such certification meets the initial training requirements referenced in this paragraph.

(3) Examination. Any applicant for certification in a specific discipline shall pass a written examination for that discipline which will be administered by the department. The department may ~~approve of~~ accept proof of successful completion of an examination administered by an Environmental Protection Agency or department approved training course ~~center, provided that~~ provider. ~~t~~The examination and the results of ~~that~~ the examination ~~are received by~~ must be available to the department upon request. Any applicant who fails to obtain a minimum seventy percent passing score on the examination shall be eligible to take a ~~second~~ subsequent examination no earlier than one week following the ? previous examination. A twenty-five dollar fee is required for each examination. No more than three examinations shall be given before requiring attendance of another initial training course. ~~All additional exams shall each require the submittal of a twenty-five dollar fee. Information concerning the testing arrangements can be obtained from the department.~~

(4) Refresher training. Any ~~asbestos contractor,~~ asbestos abatement supervisor, asbestos inspector, asbestos management planner, or asbestos abatement project designer who has received initial training and has established full certification with the department, and who wishes to maintain continuous certification, shall complete a refresher training course as required by the model

contractor accreditation plan within one year of ~~receiving full certification~~ completing the initial training course. The course content shall include, but not be limited to, ~~information specific to the particular discipline,~~ a review of the changes in the federal and state regulations, a discussion of the developments in state-of-the-art procedures and equipment as well as an overview of key aspects of the initial training course. Thereafter, these persons shall complete a refresher course designed for the respective disciplines within one year of the last refresher course.

(5) Certification renewal. Any ~~asbestos contractor,~~ asbestos abatement supervisor, asbestos inspector, asbestos management planner, or asbestos abatement project designer who desires to renew his or her certification ~~for an additional year~~ must have attended a refresher training course within twelve months prior to submittal of the renewal application. The renewal application shall include proof of attendance at such a course and a~~n~~ ~~annual~~ recertification fee of twenty-five dollars per discipline. If an individual does not satisfy the refresher training requirements of this subdivision in their respective discipline within two years of the ~~anniversary~~ date of ~~their certification~~ the initial training or of the last refresher training, then that individual shall complete the initial training requirements provided in paragraph 2 of this subdivision to reestablish full certification.

~~(6) Interim certification. Any asbestos contractor, asbestos abatement supervisor, asbestos inspector, asbestos management planner, or asbestos abatement project designer who has attended an approved training course and passed an exam associated with that course designed for that respective discipline since January 1, 1985, and prior to January 1, 1989, will receive interim certification. This interim certification shall be valid until January 1, 1990. The asbestos contractor, asbestos statement supervisor, asbestos inspector, asbestos management planner, or asbestos abatement project designer shall complete the initial training requirements as outlined in paragraph 2 of this subsection prior to January 1, 1990, to become fully certified. All persons desiring interim certification in their respective~~

~~disciplines must submit an application to the department on forms supplied by the department and accompanied by a nonrefundable fee of twenty-five dollars for each discipline to receive interim certification.~~

(~~7~~6) The certification card issued by the department must be ~~made~~ available at the worksite.

c. Asbestos contractor license. Each asbestos contractor who performs asbestos abatement services in the state shall obtain an asbestos contractor license~~.~~ except as provided in subdivision h.

(1) Submit an application to the department on forms supplied by the department. An application shall be accompanied by a nonrefundable fee of one hundred dollars.

(2) The license fee will cover the period from January first through December thirty-first of each year unless the license is suspended, revoked, or denied as specified in subdivision f. The fee shall be one hundred dollars regardless of the application date. Following the initial submittal, the renewal fee shall be due and payable by January thir~~f~~tieth of ~~each~~ the following year.

(3) An asbestos contractor seeking a license must have completed the appropriate training and certification requirements in subdivision b of this subsection. The contractor may designate an employee who has completed this requirement to serve as the contractor's agent for the purposes of obtaining a contractor license.

~~(3)~~(4) Asbestos contractors who provide multiple services ~~do~~ are not required to pay additional license fees.

~~(4)~~(5) All certifie~~d~~able services offered by an asbestos contractor must be performed by persons certified ~~persons~~ in accordance with subdivisions a and b of this subsection. ~~in their respective disciplines.~~

~~(5)~~(6) A copy of the asbestos contractor license shall be made available at the worksite.

(7) This license does not exempt, supersede, or replace any other state or local licensing or permitting requirements.

d. Approved initial and refresher training courses. The department will maintain and provide a listing of approved initial and refresher training courses. Applicants seeking approval of courses, other than those present on the department list, must submit information on the course content on application forms supplied by the department. The course content must satisfy the minimum requirements of the model contractor accreditation plan. The department will advise the applicant whether the course is approved within thirty days of receipt of the necessary information.

e. Reciprocity. Each applicant for asbestos worker or asbestos contractor certification who is licensed or certified for asbestos abatement in another state may petition the department for certification without written examination. The department shall evaluate the requirements in such other states and shall issue the certification without examination if the department determines that the requirements in such other states are at least as stringent as the requirements for certification in North Dakota. Each application for certification pursuant to this subdivision shall submit an application accompanied by a nonrefundable fee of twenty-five dollars.

f. Suspension, revocation, or denial. An asbestos certification or license may be suspended ~~or~~, revoked, or denied if:

   (1) violations of the requirements of this section are noted~~.~~; ~~Likewise, the~~

   (2) Another state has revo~~cation~~ked, ~~or~~ suspen~~sion~~ded, or denied ~~of~~ a license or certification ~~in another state~~ for violations of applicable standards; ~~addressed in this section, may be cause for suspension or revocation or denial of an asbestos certification or license in this state.~~

   (3) An incomplete application is filed; or

   (4) The required fee is not submitted.

g. Public employees will not be required to pay the twenty-five dollar certification or recertification fees.

h. Any individual or asbestos contractor engaged in repair, removal, enclosure, or encapsulation activities involving less than or equal to three square feet or three linear feet of asbestos-containing materials, are exempt from the certification and licensing requirements of this subsection.

i. Upon written request, the department, at its discretion, may review training course material and conduct an audit of a training course to determine if the course and examination meet the training requirements of 40 CFR Part 763, Appendix C to Subpart E - Environmental protection agency model contractor accreditation plan. Under the authority granted to this department by the Environmental protection agency on April 21, 1989, courses that this department determine to meet the model contractor accreditation plan must be listed in the Federal Register list of approved courses.

(1) Training courses seeking department approval shall submit material necessary for the department to conduct the review including the submittal requirements listed in 40 CFR Part 763, Appendix C, Subpart III.

(2) The department must be provided access, without cost, to any asbestos course conducted in this state to determine if the course meets the requirement of the Environmental protection agency model contractor accreditation plan. Following such an audit, the department may rescind approval or refuse to accept as adequate any course determined not to meet the training requirements of the Environmental protection agency model contractor accreditation plan.

(3) Any training provider requesting a review of the provider's course for approval by this department shall submit a filing fee of one hundred fifty dollars plus an application processing fee. The application processing fee will be based on the actual processing costs, including time spent by this department to conduct the course review and course audit, and any travel and lodging expenses the department incurs conducting these items. Following the course review and audit, and after making a determination on the accreditation status of the course, a statement will be sent to the applicant listing the remaining application processing costs. The statement must be sent within fifteen months of the submittal of the initial filing fee.

History: Amended effective October 1, 1987; January 1, 1989.
General Authority: NDCC 23-25-03 June 1, 1990.
Law Implemented: NDCC 23-25-03

33-15-13-03. Emission standard for beryllium.

1. **Applicability.** The provisions of this section are applicable to the following stationary sources:

    a. Extraction plants, ceramic plants, foundries, incinerators, and propellant plants which process beryllium ore, beryllium, beryllium oxide, beryllium alloys, or beryllium-containing waste.

    b. Machine shops which process beryllium, beryllium oxides, or any alloy when such alloy contains more than five percent beryllium by weight.

2. **Definitions.** As used in this section, all terms not defined in this subsection shall have the meaning given to them in North Dakota Century Code chapter 23-25 or in subsection 2 of section 33-15-13-01.

    a. "Beryllium" means the element beryllium. Where weights or concentrations are specified, such weights or concentrations apply to beryllium only, excluding the weight or concentration of any associated elements.

    b. "Beryllium alloy" means any metal to which beryllium has been added in order to increase its beryllium content and which contains more than one-tenth of one percent beryllium by weight.

    c. "Beryllium-containing waste" means material contaminated with beryllium or beryllium compounds, or both, used or generated during any process or operation performed by a source subject to this section.

    d. "Beryllium ore" means any naturally occurring material mined or gathered for its beryllium content.

    e. "Ceramic plant" means a manufacturing plant producing ceramic items.

    f. "Extraction plant" means a facility chemically processing beryllium ore to beryllium metal, alloy, or oxide, or performing any of the intermediate steps in these processes.

g. "Foundry" means a facility engaged in the melting or casting of beryllium metal or alloy.

h. "Incinerator" means any furnace used in the process of burning waste for the primary purpose of reducing the volume of the waste by removing combustible matter.

i. "Machine shop" means a facility performing cutting, grinding, turning, honing, milling, deburring, lapping, electrochemical machining, etching, or other similar operations.

j. "Propellant" means a fuel and oxidizer physically or chemically combined which undergoes combustion to provide rocket propulsion.

k. "Propellant plant" means any facility engaged in the mixing, casting, or machining of propellant.

3. **Emission standard.**

a. Emissions to the atmosphere from stationary sources subject to the provisions of this section may not exceed ten grams of beryllium over a twenty-four-hour period, except as provided in subdivision b.

b. Rather than meet the requirement of subdivision a, an owner or operator may request approval from the department to meet an ambient concentration limit on beryllium in the vicinity of the stationary source of one-hundredths microgram per cubic meter, averaged over a thirty-day period.

(1) Approval of such requests may be granted by the department provided that:

(a) At least three years of data is available which in the judgment of the department demonstrates that the future ambient concentrations of beryllium in the vicinity of the stationary source will not exceed one-hundredths microgram per cubic meter, averaged over a thirty-day period. Such three-year period shall be the three years ending thirty days before February 9, 1976.

(b) The owner or operator requests such approval in writing within thirty days after February 9, 1976.

(c) The owner or operator submits a report to the department within forty-five days after February 9, 1976, which report includes the following information:

[1] Description of sampling method including the method and frequency of calibration.

[2] Method of sample analysis.

[3] Averaging techniques for determining thirty-day average concentrations.

[4] Number, identity, and location (address, coordinates, or distance and heading from plant) of sampling sites.

[5] Ground elevations and height above ground of sampling inlets.

[6] Plant and sampling area plots showing emission points and sampling sites. Topographic features significantly affecting dispersion including plant building heights and locations must be included.

[7] Information necessary for estimating dispersion including stack height, inside diameter, exit gas temperature, exit velocity or flow rate, and beryllium concentration.

[8] A description of data and procedures (methods or models) used to design the air sampling network, i.e., number and location of sampling sites.

[9] Air sampling data indicating beryllium concentrations in the vicinity of the stationary source for the three-year period specified in this paragraph. This data must be presented chronologically and include the beryllium concentration and location of each individual sample taken by the network and the corresponding thirty-day average beryllium concentrations.

(2) Within sixty days after receiving such report, the department will notify the owner or operator in writing whether approval is granted or denied. Prior to denying approval to comply with the provisions of this subdivision, the department will consult with representatives of the stationary source for which the demonstration report was submitted.

c. The burning of beryllium or beryllium-containing waste, except propellants, is prohibited except in incinerators, emissions from which must comply with the standard.

4. **Stack sampling.**

a. Unless a waiver of emission testing is obtained under subsection 11 of section 33-15-13-01, each owner or operator required to comply with subdivision a of subsection 3 shall test emissions from the owner's or operator's source.

(1) Within ninety days of February 9, 1976, in the case of an existing source or a new source which has an initial startup date preceding February 9, 1976; or

(2) Within ninety days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1976.

b. The department must be notified at least thirty days prior to an emission test so that the department may observe the test.

c. Samples must be taken over such a period or periods as are necessary to accurately determine the maximum emissions which will occur in any twenty-four-hour period. Where emissions depend upon the relative frequency of operation of different types of processes, operating hours, operating capacities, or other factors, the calculation of maximum twenty-four-hour period emissions will be based on that combination of factors which is likely to occur during the subject period and which result in the maximum emissions. No changes in the operation may be made, which would potentially increase emissions above that determined by the most recent source test, until a new emission level has been estimated by calculation and the results reported to the department.

d. All samples must be analyzed and beryllium emissions must be determined within thirty days after the source test. All determinations must be reported to the department by a registered letter dispatched before the close of the next business day following such determination.

e. Records of emission test results and other data needed to determine total emissions must be retained at the source and made available, for inspection by the department, for a minimum of two years.

5. **Air sampling.**

a. Stationary sources subject to subdivision b of subsection 3 shall locate air sampling sites in accordance with a plan approved by the department. Such sites must be located in such a manner as is calculated to detect maximum concentrations of beryllium in the ambient air.

b. All monitoring sites must be operated continuously except for a reasonable time allowance for instrument maintenance and calibration, for changing filters, or for replacement of equipment needing major repair.

c. Filters must be analyzed and concentrations calculated within thirty days after filters are collected. Records of concentrations at all sampling sites and other data needed to determine such concentrations must be retained at the source and made available, for inspection by the department, for a minimum of two years.

d. Concentrations measured at all sampling sites must be reported to the department every thirty days by a registered letter.

e. The department may at any time require changes in, or expansion of, the sampling network.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-13-04. Emission standard for beryllium rocket motor firing.

1. **Applicability.** The provisions of this section are applicable to rocket motor testsites.

2. **Definitions.** As used in this section, all terms not defined in this subsection shall have the meaning given

to them in North Dakota Century Code chapter 23-25 or in subsection 2 of section 33-15-13-01.

a. "Beryllium propellant" means any propellant incorporating beryllium.

b. "Rocket motor test site" means any building, structure, facility, or installation where the static test firing of a beryllium rocket motor or the disposal of beryllium propellant, or both, is conducted.

3. **Emission standard.**

a. Emissions to the atmosphere from rocket motor test sites may not cause time-weighted atmospheric concentrations of beryllium to exceed seventy-five microgram minutes per cubic meter of air within the limits of ten to sixty minutes, accumulated during any two consecutive weeks, in any area in which an effect adverse to public health could occur.

b. If combustion products from the firing of beryllium propellant are collected in a closed tank, emissions from such tank may not exceed two grams per hour and a maximum of ten grams per day.

4. **Emission testing - Rocket firing or propellant disposal.**

a. Ambient air concentrations must be measured during and after firing of a rocket motor or propellant disposal and in such a manner that the effect of these emissions can be compared with the standard. Such sampling techniques must be approved by the department.

b. All samples must be analyzed and results must be calculated within thirty days after samples are taken and before any subsequent rocket motor firing or propellant disposal at the given site. All results must be reported to the department by a registered letter dispatched before the close of the next business day following determination of such results.

c. Records of air sampling test results and other data needed to determine integrated intermittent concentrations must be retained at the source and made available for inspection by the department, for a minimum of two years.

d. The department must be notified at least thirty days prior to an air sampling test, so that it may at its option observe the test.

5. **Stack sampling.**

   a. Sources subject to subdivision b of subsection 3 must be continuously sampled, during release of combustion products from the tank, in such a manner that compliance with the standard can be determined. The provisions of subsection 12 of section 33-15-13-01 shall apply.

   b. All samples must be analyzed, and beryllium emissions must be determined within thirty days after samples are taken and before any subsequent rocket motor firing or propellant disposal at the given site. All determinations must be reported to the department by a registered letter dispatched before the close of the next business day following such determinations.

   c. Records of emission test results and other data needed to determine total emissions must be retained at the source and made available, for inspection by the department, for a minimum of two years.

   d. The department must be notified at least thirty days prior to an emission test so that it may, at its option, observe the test.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-13-05. Emission standard for mercury.

1. **Applicability.** The provisions of this section are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge.

2. **Definitions.** As used in this section, all terms not defined in this subsection shall have the meaning given to them in North Dakota Century Code chapter 23-25 or in subsection 2 of section 33-15-13-01.

   a. "Cell room" means a structure or structures housing one or more mercury electroylytic chlor-alkali cells.

   b. "Condenser stack gases" mean the gaseous effluent evolved from the stack of processes utilizing heat to extract mercury metal from mercury ore.

c. "Denuder" means a horizontal or vertical container which is part of a mercury chlor-alkali cell and in which water and alkali metal amalgam are converted to alkali metal hydroxide, mercury, and hydrogen gas in a short-circuited, electrolytic reaction.

d. "End box" means a container or containers located on one or both ends of a mercury chlor-alkali electrolyzer which serves as a connection between the electrolyzer and denuder for rich and stripped amalgam.

e. "End box ventilation system" means a ventilation system which collects mercury emissions from the end boxes, the mercury pump sumps, and their water collection systems.

f. "Hydrogen gas stream" means a hydrogen stream formed in the chlor-alkali cell denuder.

g. "Mercury" means the element mercury, excluding any associated elements, and includes mercury in particulates, vapors, aerosols, and compounds.

h. "Mercury chlor-alkali cell" means a device which is basically composed of an electrolyzer section and a denuder (decomposer) section and utilizes mercury to produce chlorine gas, hydrogen gas, and alkali metal hydroxide.

i. "Mercury chlor-alkali electrolyzer" means an electrolytic device which is part of a mercury chlor-alkali cell and utilizes a flowing mercury cathode to produce chlorine gas and alkali metal amalgam.

j. "Mercury ore" means a mineral mined specifically for its mercury content.

k. "Mercury ore processing facility" means a facility processing mercury ore to obtain mercury.

l. "Sludge" means sludge produced by a treatment plant that processed municipal or industrial wastewaters.

m. "Sludge dryer" means a device used to reduce the moisture content of sludge by heating to temperatures above sixty-five degrees Celsius [circa 150 degrees Fahrenheit] directly with combustion gases.

3. **Emission standard.**

a. Emission to the atmosphere from mercury ore processing facilities and mercury cell chlor-alkali plants may not exceed two thousand three hundred grams of mercury per twenty-four-hour period.

b. Emissions to the atmosphere from sludge incineration plants, sludge drying plants, or a combination of these that process wastewater treatment plant sludges may not exceed three thousand two hundred grams of mercury per twenty-four-hour period.

4. **Stack sampling.**

   a. Mercury ore processing facility.

      (1) Unless a waiver of emission testing is obtained under subsection 11 of section 33-15-13-01, each owner or operator processing mercury ore shall test emissions from the owner's or operator's source.

         (a) Within ninety days of February 9, 1976, in the case of an existing source or a new source which has an initial startup date preceding February 9, 1976; or

         (b) Within ninety days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1976.

      (2) The department must be notified at least thirty days prior to an emission test so that it may, at its option, observe the test.

      (3) Samples must be taken over such a period or periods as are necessary to accurately determine the maximum emissions which will occur in a twenty-four-hour period. No changes in the operation may be made, which would potentially increase emissions above that determined by the most recent source test, until the new emission level has been estimated by calculation and the results reported to the department.

      (4) All samples must be analyzed, and mercury emissions must be determined within thirty days after the source test. Each determination will be reported to the department by a registered letter dispatched before the close of the next business day following such determination.

(5) Records of emission test results and other data needed to determine total emissions must be retained at the source and made available, for inspection by the department, for a minimum of two years.

b. Mercury chlor-alkali plant-hydrogen and end box ventilation gas streams.

(1) Unless a waiver of emission testing is obtained under subsection 11 of section 33-15-13-01, each owner or operator employing mercury chlor-alkali cell or cells shall test emissions from the owner's or operator's source.

(a) Within ninety days of February 9, 1976, in the case of an existing source or a new source which has an initial startup date preceding February 9, 1976; or

(b) Within ninety days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1976.

(2) The department must be notified at least thirty days prior to an emission test so that it may, at its option, observe the test.

(3) Samples must be taken over such a period or periods as are necessary to accurately determine the maximum emissions which will occur in a twenty-four-hour period. No changes in the operation may be made, which would potentially increase emissions above that determined by the most recent source test, until the new emission has been estimated by calculation and the results reported to the department.

(4) All samples must be analyzed and mercury emissions must be determined within thirty days after the source test. All the determinations will be reported to the department by a registered letter dispatched before the close of the next business day following such determination.

(5) Records of emission test results and other data needed to determine total emissions must be retained at the source and made available, for inspection by the department, for a minimum of two years.

c. Mercury chlor-alkali plants - cell room ventilation system.

(1) Stationary sources using mercury chlor-alkali cells may test cell room emissions in accordance with paragraph 2 or demonstrate compliance with paragraph 4 and assume ventilation emissions of one thousand three hundred grams per day of mercury.

(2) Unless a waiver of emission testing is obtained under subsection 11 of section 33-15-13-01, each owner or operator shall pass all cell room air in forced gas streams through stacks suitable for testing.

(a) Within ninety days of the effective date in the case of an existing source or a new source which has an initial startup date preceding February 9, 1976; or

(b) Within ninety days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1976.

(3) The department must be notified at least thirty days prior to an emission test so that it may, at its option, observe the test.

(4) An owner or operator may carry out approved design, maintenance, and housekeeping practices. A list of approved design, maintenance, and housekeeping practices may be obtained from the department.

d. Sludge incineration and drying plants.

(1) Unless a waiver of emission testing is obtained under subsection 11 of section 33-15-13-01, each owner or operator of a source subject to the standard in subdivision b of subsection 3 shall test emissions from that source. Such tests must be conducted in accordance with the procedures set forth either in this subdivision or in subsection 5.

(2) Method 101 in appendix B to this chapter shall be used to test emissions as follows:

(a) The test must be performed within ninety days of February 9, 1976, in the case of an existing source or a new source which has an initial startup date preceding February 9, 1976.

(b) The test must be performed within ninety days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1976.

(3) The department must be notified at least thirty days prior to an emission test so that it may, at its option, observe the test.

(4) Samples must be taken over such a period or periods as are necessary to determine accurately the maximum emissions which will occur in a twenty-four-hour period. No changes may be made in the operation which would potentially increase emissions above the level determined by the most recent stack test, until the new emission level has been estimated by calculation and the results reported to the department.

(5) All samples must be analyzed, and mercury emissions must be determined within thirty days after the stack test. Each determination must be reported to the department by a registered letter dispatched before the close of the next business day following such determination.

(6) Records of emission test results and other data needed to determine total emissions must be retained at the source and must be made available, for inspection by the department, for a minimum of two years.

5. **Sludge sampling.**

a. As an alternative means for demonstrating compliance with subdivision b of subsection 3, an owner or operator may use method 105 of appendix B and the procedures specified in this subsection.

(1) A sludge test must be conducted within ninety days of February 9, 1976, in the case of an existing source or a new source which has an initial startup date preceding February 9, 1976.

(2) A sludge test must be conducted within ninety days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1976.

b. The department must be notified at least thirty days prior to a sludge sampling test so that it may, at its option, observe the test.

c. Sludge must be sampled according to paragraph 1, sludge charging rate for the plant must be determined according to paragraph 2, and the sludge analysis must be performed according to paragraph 3.

   (1) The sludge must be sampled after dewatering and before incineration or drying, at a location that provides a representative sample of the sludge that is charged to the incinerator or dryer. Eight consecutive grab samples must be obtained at intervals of between forty-five and sixty minutes and thoroughly mixed into one sample. Each of the eight grab samples shall have a volume of at least two hundred milliliters but not more than four hundred milliliters. A total of three composite samples must be obtained within an operating period of twenty-four hours. When the twenty-four-hour operating period is not continuous, the total sampling period may not exceed seventy-two hours after the first grab sample is obtained. Samples may not be exposed to any condition that may result in mercury contamination or loss.

   (2) The maximum twenty-four-hour period sludge incineration or drying rate must be determined by use of a flow rate measurement device that can measure the mass rate of sludge charged to the incinerator or dryer with an accuracy of ±five percent over its operating range. Other methods of measuring sludge mass charging rates may be used if they have received prior approval by the department.

   (3) The handling, preparation, and analysis of sludge samples must be accomplished according to method 105 in appendix B of this chapter.

d. The mercury emissions must be determined by use of the following equation:

$$E_{HG} = 1 \times 10^{-3}\ cQ$$

where:

E_{HG} = mercury emissions, grams per day.

c = mercury concentration of sludge on a dry solids basis, micrograms per gram (parts per million).

Q = sludge charging rate, kilograms per day.

e. No changes in the operation of a plant may be made after a sludge test has been conducted which would potentially increase emissions above the level determined by the most recent sludge test, until the new emission level has been estimated by calculation and the results reported to the department.

f. All sludge samples must be analyzed for mercury content within thirty days after the sludge sample is collected. Each determination must be reported to the department by a registered letter dispatched before the close of the next business day following such determination.

g. Records of sludge sampling, charging rate determination, and other data needed to determine mercury content of wastewater treatment plant sludges must be retained at the source and made available, for inspection by the department, for a minimum of two years.

6. **Emission monitoring - Wastewater treatment plant sludge incineration and drying plants.** All such sources for which mercury emissions exceed one thousand six hundred grams per day, demonstrated either by stack sampling according to subsection 4 or sludge sampling according to subsection 5, shall monitor mercury emissions at intervals of at least once per year by use of method 105 of appendix B, or the procedures specified in subdivisions c and d of subsection 5. The results of monitoring must be reported and retained according to paragraphs 5 and 6 of subdivision d of subsection 4 or subdivisions f and g of subsection 5.

General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-13-06. Emission standard for vinyl chloride.

1. **Applicability.**

a. This section applies to plants which produce:

(1) Ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene.

(2) Vinyl chloride by any process.

(3) One or more polymers containing any fraction of polymerized vinyl chloride.

b. This section does not apply to equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity of no more than nineteen-hundredths of a cubic meter [50 gallons].

c. Provisions of this section other than paragraph 1 of subdivision a, subdivision b, subdivision c, and subdivision d of subsection 5 do not apply to equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity of greater than nineteen-hundredths of a cubic meter [50 gallons] and no more than four and seven-hundredths cubic meters [1,100 gallons].

2. **Definitions.** Terms used in this section are defined in North Dakota Century Code chapter 23-25, in subsection 2 of section 33-15-12-01, or in this subsection as follows:

a. "Bulk resin" means a resin which is produced by a polymerization process in which no water is used.

b. "Dispersion resin" means a resin manufactured in such a way as to form fluid dispersions when dispersed in a plasticizer or plasticizer/diluent mixtures.

c. "Ethylene dichloride plant" includes any plant which produces ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene.

d. "Ethylene dichloride purification" includes any part of the process of ethylene dichloride production which follows ethylene dichloride formation and in which finished ethylene dichloride is produced.

e. "Grade of resin" means the subdivision of resin classification which describes it as a unique resin, i.e., the most exact description of a resin with no further subdivision.

f. "In vinyl chloride service" means that a piece of equipment contains or contacts either a liquid that is at least ten percent by weight vinyl chloride or a gas that is at least ten percent by volume vinyl chloride.

g. "Inprocess wastewater" means any water which, during manufacturing or processing, comes into direct contact with vinyl chloride or polyvinyl chloride or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product containing vinyl chloride or polyvinyl chloride but which has not been discharged to a wastewater treatment process or discharged untreated as wastewater.

h. "Latex resin" means a resin which is produced by a polymerization process which initiates from free radical catalyst sites and is sold undried.

i. "Polyvinyl chloride plant" includes any plant where vinyl chloride alone or in combination with other materials is polymerized.

j. "Reactor" includes any vessel in which vinyl chloride is partially or totally polymerized into polyvinyl chloride.

k. "Reactor opening loss" means the emissions of vinyl chloride occurring when a reactor is vented to the atmosphere for any purpose other than an emergency relief discharge, as defined in subdivision a of subsection 6.

l. "Run" means the net period of time during which an emission sample is collected.

m. "Slip gauge" means a gauge which has a probe that moves through the gas/liquid interface in a storage or transfer vessel and indicates the level of vinyl chloride in the vessel by the physical state of the material the gauge discharges.

n. "Standard operating procedure" means a formal written procedure officially adopted by the plant owner or operator and available on a routine basis to those persons responsible for carrying out the procedure.

o. "Standard pressure" means a pressure of seven hundred sixty millimeters of mercury [29.92 inches of mercury].

p. "Standard temperature" means a temperature of twenty degrees Celsius [68 degrees Fahrenheit].

q. "Stripper" includes any vessel in which residual vinyl chloride is removed from polyvinyl chloride resin, except bulk resin, in the slurry form by the use of heat or vacuum. In the case of bulk resin, stripper includes any vessel which is used to remove residual vinyl chloride from polyvinyl chloride resin immediately following the polymerization step in the plant process flow.

r. "Type of resin" means the broad classification of resin referring to the basic manufacturing process for producing that resin, including, but not limited to, the suspension, dispersion, latex, bulk, and solution processes.

s. "Vinyl chloride plant" includes any plant which produces vinyl chloride by any process.

t. "Vinyl chloride purification" includes any part of the process of vinyl chloride production which follows vinyl chloride formation and in which vinyl chloride is produced.

u. "Wastewater treatment process" includes any process which modifies characteristics such as BOD, COD, TSS, and pH, usually for the purpose of meeting effluent guidelines and standards; it does not include any process the purpose of which is to remove vinyl chloride from water to meet requirements of this subsection.

3. **Emission standard for ethylene dichloride plants.** Any owner or operator of any ethylene dichloride plant shall comply with the requirements of this subsection and subsection 6.

a. Ethylene dichloride purification. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from any equipment used in ethylene dichloride purification is not to exceed ten parts per million, except as provided in subdivision a of subsection 6. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subparagraph a of paragraph 6 of subdivision b of subsection 6 before being opened.

b. Oxychlorination reactor. Except as provided in subdivision a of subsection 6, emissions of vinyl chloride to the atmosphere from each oxychlorination reactor are not to exceed two-tenths of a gram per kilogram [0.0002 pound per pound] of the one hundred percent ethylene dichloride product from the oxychlorination process.

4. **Emission standard for vinyl chloride plants.** An owner or operator of a vinyl chloride plant shall comply with the requirements of this subsection and subsection 6.

   a. Vinyl chloride formation and purification. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from any equipment used in vinyl chloride formation or purification is not to exceed ten parts per million, except as provided in subdivision a of subsection 6. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subparagraph a of paragraph 6 of subdivision b of subsection 6 before being opened.

5. **Emission standard for polyvinyl chloride plants.** An owner or operator of a polyvinyl chloride plant shall comply with the requirements of this subsection and subsection 6.

   a. Reactor. The following requirements apply to reactors:

      (1) The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each reactor is not to exceed ten parts per million, except as provided in paragraph 2 and subsection 6.

      (2) The reactor opening loss from each reactor is not to exceed two-hundredths gram vinyl chloride per kilogram [0.00002 pound vinyl chloride per pound] of polyvinyl chloride product, with the product determined on a dry solids basis. This requirement applies to any vessel which is used as a reactor or as both a reactor and a stripper. In the bulk process, the product means the gross product of prepolymerization and postpolymerization.

      (3) Manual vent valve discharge. Except for an emergency manual vent valve discharge, there is to be no discharge to the atmosphere from any manual vent valve on a polyvinyl chloride reactor in vinyl chloride service. An emergency manual vent valve discharge means a discharge to the atmosphere which could not have been avoided by taking measures to prevent the discharge. Within ten days of any discharge to the atmosphere from any manual vent valve, the owner or operator of the source from which the discharge occurs shall submit to the department a report in writing

containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

b. Stripper. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each stripper is not to exceed ten parts per million, except as provided in subdivision a of subsection 6. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subparagraph a of paragraph 6 of subdivision b of subsection 6 before being opened.

c. Mixing, weighing, and holding containers. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each mixing, weighing, or holding container in vinyl chloride service which precedes the stripper (or the reactor if the plant has no stripper) in the plant process flow is not to exceed ten parts per million, except as provided in subdivision a of subsection 6. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subparagraph a of paragraph 6 of subdivision b of subsection 6 before being opened.

d. Monomer recovery system. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each monomer recovery system is not to exceed ten parts per million, except as provided in subdivision a of subsection 6. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subparagraph a of paragraph 6 of subdivision b of subsection 6 before being opened.

e. Sources following the stripper. The following requirements apply to emissions of vinyl chloride to the atmosphere from the combination of all sources following the stripper (or the reactor if the plant has no stripper) in the plant process flow including, but not limited to, centrifuges, concentrators, blend tanks, filters, dryers, conveyor air discharges, baggers, storage containers, and inprocess wastewater:

(1) In polyvinyl chloride plants using stripping technology to control vinyl chloride emissions, the weighted average residual vinyl chloride concentration in all grades of polyvinyl chloride resin processed through the stripping operation on each calendar day, measured immediately after the stripping operation is completed, may not exceed:

(a) Two thousand parts per million for polyvinyl chloride dispersion resins, excluding latex resins.

(b) Four hundred parts per million for all other polyvinyl chloride resins, including latex resins, averaged separately for each type of resin.

(2) In polyvinyl chloride plants controlling vinyl chloride emissions with technology other than stripping or in addition to stripping, emissions of vinyl chloride to the atmosphere may not exceed:

(a) Two grams per kilogram [0.002 pound per pound] product from the stripper (or reactor if the plant has no stripper) for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solids basis.

(b) Four-tenths gram per kilogram [0.0004 pound per pound] product from the stripper (or reactor if the plant has no stripper) for all other polyvinyl chloride resins, including latex resins, with the product determined on a dry solids basis.

6. **Emission standard for ethylene dichloride, vinyl chloride, and polyvinyl chloride plants.** An owner or operator of an ethylene dichloride, vinyl chloride, or polyvinyl chloride plant shall comply with the requirements of this subsection:

a. Relief valve discharge. Except for an emergency relief discharge, there is to be no discharge to the atmosphere from any relief valve on any equipment in vinyl chloride service. An emergency relief discharge means a discharge which could not have been avoided by taking measures to prevent the discharge. Within ten days of any relief valve discharge, the owner or operator of the source from which the relief valve discharge occurs shall submit to the department a report in writing containing information on the source, nature, and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

b. Fugitive emission sources.

  (1) Loading and unloading lines. Vinyl chloride emissions from loading and unloading lines in vinyl chloride service which are opened to the atmosphere after each loading or unloading operation are to be minimized as follows:

    (a) After each loading or unloading operation and before opening a loading or unloading line to the atmosphere, the quantity of vinyl chloride in all parts of each loading or unloading line that are to be opened to the atmosphere is to be reduced so that the parts combined contain no greater than thirty-eight ten-thousandths cubic meter [0.13 cubic feet] of vinyl chloride, at standard temperature and pressure.

    (b) Any vinyl chloride removed from a loading or unloading line in accordance with subparagraph a is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million, or equivalent as provided in subsection 7.

  (2) Slip gauges. During loading or unloading operations, the vinyl chloride emissions from each slip gauge in vinyl chloride service are to be minimized by ducting any vinyl chloride discharged from the slip gauge through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million, or equivalent as provided in subsection 7.

  (3) Leakage from pump, compressor, and agitator seals.

    (a) Rotating pumps. Vinyl chloride emissions from seals on all rotating pumps in vinyl chloride service are to be minimized by installing sealless pumps, pumps with double mechanical seals, or equivalent as provided in subsection 7. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million; or equivalent as provided in subsection 7.

(b) Reciprocating pumps. Vinyl chloride emissions from seals on all reciprocating pumps in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in subsection 7. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million; or equivalent as provided in subsection 7.

(c) Rotating compressors. Vinyl chloride emissions from seals on all rotating compressors in vinyl chloride service are to be minimized by installing compressors with double mechanical seals, or equivalent as provided in subsection 7. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million; or equivalent as provided in subsection 7.

(d) Reciprocating compressors. Vinyl chloride emissions from seals on all reciprocating compressors in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in subsection 7. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million; or equivalent as provided in subsection 7.

(e) Agitator. Vinyl chloride emissions from seals on all agitators in vinyl chloride service are to be minimized by installing agitators with double mechanical seals, or equivalent as provided in subsection 7. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals though a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million; or equivalent as provided in subsection 7.

(4) Leakage from relief valves. Vinyl chloride emissions due to leakage from each relief valve on equipment in vinyl chloride service are to be minimized by installing a rupture disk between the equipment and the relief valve, by connecting the relief valve discharge to a process line or recovery system, or equivalent as provided in subsection 7.

(5) Manual venting of gases. Except as provided in paragraph 3 of subdivision a of subsection 5, all gases which are manually vented from equipment in vinyl chloride service are to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million; or equivalent as provided in this section.

(6) Opening of equipment. Vinyl chloride emissions from opening of equipment (including loading or unloading lines that are not opened

to the atmosphere after each loading or unloading operation) are to be minimized as follows:

(a) Before opening any equipment for any reason, the quantity of vinyl chloride is to be reduced so that the equipment contains no more than two percent by volume vinyl chloride or ninety-five-thousandths cubic meter [25 gallons] of vinyl chloride, whichever is larger, at standard temperature and pressure.

(b) Any vinyl chloride removed from the equipment in accordance with subparagraph a is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million, or equivalent as provided in subsection 7.

(7) Samples. Unused portions of samples containing at least ten percent of weight vinyl chloride are to be returned to the process, and sampling techniques are to be such that sample containers in vinyl chloride service are purged into a closed process system.

(8) Leak detection and elimination. Vinyl chloride emissions due to leaks from equipment in vinyl chloride service are to be minimized by instituting and implementing a formal leak detection and elimination program. The owner or operator shall submit a description of the program to the department for approval. The program is to be submitted within forty-five days of the effective date of this chapter.

(a) It includes a reliable and accurate vinyl chloride monitoring system for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry flame ion detection, or an equivalent or alternative method.

(b) It includes a reliable and accurate portable hydrocarbon detector to be used routinely to find small leaks and to pinpoint the major leaks indicated by the vinyl chloride monitoring system. A portable hydrocarbon detector means a device which measures hydrocarbons with a sensitivity of at least ten parts per million and is of such design and size that it can be used to measure emissions from localized points.

(c) It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check is to be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to subparagraph f. The calibration is to be done with either:

[1] A calibration gas mixture prepared from the gases specified in sections 5.2.1 and 5.2.2 of test method 106 and in accordance with section 7.1 of test method 106; or

[2] A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than ±five percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration, and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of test method 106. The requirements in sections 5.2.3.1 and 5.2.3.2 of

test method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

(d) The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and the size and physical layout of the plant.

(e) It contains an acceptable plan of action to be taken when a leak is detected.

(f) It contains a definition of leak which is acceptable when compared with the background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

(9) Inprocess wastewater. Vinyl chloride emissions to the atmosphere from inprocess wastewater are to be reduced as follows:

(a) The concentration of vinyl chloride in each inprocess wastewater stream containing greater than ten parts per million vinyl chloride measured immediately as it leaves a piece of equipment and before being mixed with any other inprocess wastewater stream is to be reduced to no more than ten parts per million by weight before being mixed with any other inprocess wastewater stream which contains less than ten parts per million vinyl chloride, before being exposed to the atmosphere, before being discharged to a wastewater treatment process, or before being discharged untreated as a wastewater. This subparagraph does apply to water which is used to displace vinyl chloride from equipment before it is opened to the atmosphere in accordance with paragraph 2 of subdivision a of subsection 5 or paragraph 6 of this subdivision, but does not apply to water which is used to wash out equipment after the equipment has already been opened to the atmosphere in accordance with paragraph 2 of subdivision a of subsection 5 or paragraph 6.

(b) Any vinyl chloride removed from the inprocess wastewater in accordance with paragraph 3 of this subdivision is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten parts per million, or equivalent as provided in subsection 7.

c. The requirements of paragraphs 1, 2, 5, 6, 7, and 8 of subdivision b are to be incorporated into a standard operating procedure, and made available upon request for inspection by the department. The standard operating procedure is to include provisions for measuring the vinyl chloride in equipment four and seventy-five hundredths cubic meters [1,250 gallons] in volume for which an emission limit is prescribed in subparagraph a of paragraph 6 of subdivision b prior to opening the equipment and using test method 106, a portable hydrocarbon detector, or an equivalent or alternative method. The method of measurement is to meet the requirements in items 1 and 2 of subparagraph a of paragraph 5 of subdivision g of subsection 8.

7. **Equivalent equipment and procedures.** Upon written application from an owner or operator, the department and administrator may approve use of equipment or procedures which have been demonstrated to its satisfaction to be equivalent in terms of reducing vinyl chloride emissions to the atmosphere to those prescribed for compliance with a specific provision of this section. For an existing source, any request for using an equivalent method as the initial measure of control is to be submitted to the department and administrator within thirty days of the effective date. For a new source, any request for using an equivalent method is to be submitted to the department and administrator with the application for approval of construction or modification by subsection 6 of section 33-15-13-01.

8. **Emission tests.**

a. Unless a waiver of emission testing is obtained under subsection 11 of section 33-15-13-01, the owner or operator of a source to which this section applies shall test emissions from the source within ninety days of startup in the case of a new source, initial startup of which occurs after the effective date.

b. The owner or operator shall provide the department at least thirty days' prior notice of an emission test to afford the department the opportunity to have an observer present during the test.

c. Any emission test is to be conducted while the equipment being tested is operating at the maximum production rate at which the equipment will be operated and under other relevant conditions as may be specified by the department based on representative performance of the source.

d. [Reserved]

e. When at all possible, each sample is to be analyzed within twenty-four hours, but in no case in excess of seventy-two hours of sample collection. Vinyl chloride emissions are to be determined within thirty days after the emission test. The owner or operator shall report the determinations to the department by a registered letter dispatched before the close of the next business day following the determination.

f. The owner or operator shall retain at the plant and make available, upon request, for inspection by the department, for a minimum of two years, records of emission test results and other data needed to determine emissions.

g. Unless otherwise specified, the owner or operator shall use test methods in appendix B to this chapter for each test as required by paragraphs 1, 2, 3, 4, and 5 unless an equivalent method or an alternative method has been approved by the department. If the department finds reasonable grounds to dispute the results obtained by an equivalent or alternative method, the department may require the use of a reference method. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the department may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

(1) Test method 106 is to be used to determine the vinyl chloride emissions from any source for which an emission limit is prescribed in subdivision a or b of subsection 3; subdivision a of subsection 4; paragraph 1 of subdivision a, subdivision b, subdivision c, or subdivision d of subsection 5, or from any control system to which reactor emissions are required to be ducted in paragraph 2 of subdivision a of subsection 5 or to which fugitive emissions are required to be ducted in subparagraph b of paragraph 1, paragraph 2, paragraph 5, subparagraph b of paragraph 6, subparagraph b of paragraph 9 of subdivision b of subsection 6.

(a) For each run, one sample is to be collected. The sampling site is to be at least two stack or duct diameters downstream and one-half diameter upstream from any flow disturbance such as a bend, expansion, contraction, or visible flame. For a rectangular cross section an equivalent diameter is to be determined from the following equation:

$$\text{equivalent diameter} = 2\,\frac{(\text{length})\ (\text{width})}{\text{length} + \text{width}}$$

The sampling point in the duct is to be at the centroid of the cross section. The sample is to be extracted at a rate proportional to the gas velocity at the sampling point. The sample is to be taken over a minimum of one hour, and is to contain a minimum volume of fifty liters corrected to standard conditions.

(b) Each emission test is to consist of three runs. For the purpose of determining emissions, the average of results of all runs is to apply. The average is to be computed on a time weighted basis.

(c) For gas streams containing more than ten percent oxygen, the concentration of vinyl chloride as determined by test method 106 is to be corrected to ten percent oxygen (dry basis) for determination of emissions by using the following equation:

$$C_b\text{(corrected)} = C_b \frac{10.9}{20.9 - \text{percent } O_2}$$

where:

C_b(corrected) = concentration of vinyl chloride in the exhaust gases, corrected to ten percent oxygen.

C_b = concentration of vinyl chloride as measured by test method 106.

20.9 = percent oxygen in the ambient air at standard conditions.

10.9 = percent oxygen in the ambient air at standard conditions, minus the ten percent oxygen to which the correction is being made.

percent O_2 = percent oxygen in the exhaust gas as measured by reference method 3 in appendix A of chapter 33-15-12.

(d) For those emission sources where the emission limit is prescribed in terms of mass rather than concentration, mass emissions in kilograms per one hundred kilograms product are to be determined by using the following equation:

$$C_{BX} = \frac{[C_b(2.60)Q\ 10^{-6}][100]}{Z}$$

where:

C_{BX} = kilogram vinyl chloride per one hundred kilogram product.

C_b = concentration of vinyl chloride as measured by test method 106.

2.60 = density of vinyl chloride at one atmosphere and twenty degrees Celsius in kilograms per cubic meter.

10^{-6} = conversion factor for parts per million.

Z = production rate [kilograms per hour].

(2) Test method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream for which an emission limit is prescribed in subparagraph a of paragraph 9 of subdivision b of subsection 6.

(3) Where a stripping operation is used to attain the emission limit in subdivision e of subsection 5, emissions are to be determined using test method 107 as follows:

(a) The number of strippers and samples and the types and grades of resin to be sampled are to be determined by the department for each individual plant at the time of the test based on the plant's operation.

(b) Each sample is to be taken immediately following the stripping operation.

(c) The corresponding quantity of material processed by each stripper is to be determined on a dry solids basis and by a method submitted to and approved by the department.

(d) At the prior request of the department the owner or operator shall provide duplicates of the samples required in subparagraph a.

(4) Where control technology other than or in addition to a stripping operation is used to attain the emission limit in subdivision e of subsection 5, emissions are to be determined as follows:

(a) Test method 106 is to be used to determine atmospheric emissions from all of the process equipment simultaneously. The requirements of subparagraph a of paragraph 3 are to be met.

(b) Test method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream subject to the emission limit prescribed in subdivision e of subsection 5. The mass of vinyl chloride in kilograms per one hundred kilograms product in each inprocess wastewater stream is to be determined by using the following equation:

$$C_{BX} = \frac{[C_d R\ 10^{-6}][100]}{Z}$$

where:

C_{BX} = kilogram vinyl chloride per one hundred kilograms product.

C_d = concentration of vinyl chloride as measured by test method 107.

R = water flow rate in liters per hour, determined in accordance with a method which has been submitted to and approved by the department.

10^{-6} = conversion factor for parts per million.

Z = production rate [kilograms per hour], determined in accordance with a method which has been submitted and approved by the department.

(5) The reactor opening loss for which an emission limit is prescribed in paragraph 2 of subdivision a of subsection 5 is to be determined. The number of reactors for which the determination is to be made is to be specified by the department for each individual plant at the time of the determination based on the plant's operation. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

(a) Except as provided in subparagraph b, the reactor opening loss is to be determined using the following equation:

$$C = \frac{W(2.60)(10^{-6})(Cb)}{YZ}$$

where:

C = kilogram vinyl chloride emissions per kilogram product.

W = capacity of the reactor in cubic meters.

2.60 = density of vinyl chloride at one atmosphere and twenty degrees Celsius in kilogram per cubic meter.

10^{-6} = conversion factor for parts per million.

Cb = parts per million by volume vinyl chloride as determined by test method 106 or a portable hydrocarbon detector which measures hydrocarbons with a sensitivity of at least ten parts per million.

Y = number of batches since the reactor was last opened to the atmosphere.

Z = average kilograms of polyvinyl chloride produced per batch in the number of batches since the reactor was last opened to the atmosphere.

[1] If method 106 is used to determine the concentration of vinyl chloride (Cb), the sample is to be withdrawn at a constant rate with a probe of sufficient length to reach the vessel bottom from the manhole. Samples are to be taken for five minutes within six inches [15.24 centimeters] of the vessel bottom, five minutes near the vessel center, and five minutes near the vessel top.

[2] If a portable hydrocarbon detector is used to determine the concentration of vinyl chloride (Cb), a probe of sufficient length to reach the vessel bottom from the manhole is to be used to make the

measurements. One measurement will be made within six inches [15.24 centimeters] of the vessel bottom, one near the vessel center, and one near the vessel top. Measurements are to be made at each location until the reading is stabilized. All hydrocarbons measured are to be assumed to be vinyl chloride.

[3] The production rate of polyvinyl chloride (Z) is to be determined by a method submitted to and approved by the department.

(b) A calculation based on the number of evacuations, the vacuum involved, and the volume of gas in the reactor is hereby approved by the department or as an alternative method for determining reactor opening loss for postpolymerization reactors in the manufacture of bulk resins.

9. **Emission monitoring.**

a. A vinyl chloride monitoring system is to be used to monitor on a continuous basis the emissions from the sources for which emission limits are prescribed in subdivisions a and b of subsection 3, subdivision a of subsection 4, and paragraph 1 of subdivision a, subdivision c, and subdivision d of subsection 5, and for any control system to which reactor emissions are required to be ducted in paragraph 2 of subdivision a of subsection 5 or to which fugitive emissions are required to be ducted in subparagraph a of paragraph 1, paragraph 2, paragraph 5, subparagraph b of paragraph 6, and subparagraph b of paragraph 9 of subdivision b of subsection 6.

b. The vinyl chloride monitoring system used to meet the requirement in subdivision a is to be a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. The vinyl chloride monitoring system used to meet the requirements in subparagraph a of paragraph 8 of subdivision b of subsection 6 may be used to meet the requirements of this subsection.

c. A daily span check is to be conducted for each vinyl chloride monitoring system used. For all of the emission sources listed in subdivision a, except the one for which an emission limit is prescribed in subdivision b of subsection 3, the daily span check is to be conducted with a concentration of vinyl chloride equal to ten parts per million. For the emission source for which an emission limit is prescribed in subdivision b of subsection 3, the daily span check is to be conducted with a concentration of vinyl chloride which is determined to be equivalent to the emission limit for that source based on the emission test required by subsection 8. The calibration is to be done with either:

    (1) A calibration gas mixture prepared from the gases specified in sections 5.2.1 and 5.2.2 of test method 106 and in accordance with section 7.1 of test method 106; or

    (2) A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than ±five percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration, and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of test method 106. The requirements in sections 5.2.3.1 and 5.2.3.2 of test method 6 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

10. **Initial report.**

a. An owner or operator of any source to which this section applies shall submit a statement in writing notifying the department that the equipment and procedural specifications in paragraphs 1, 2, 3, 4, 5, 6, 7, and 8 of subdivision b of subsection 6 are being implemented. In the case of a new source which did not have an initial startup date preceding the effective date, the statement is to be submitted within thirty days of the initial startup date.

b. The statement is to contain the following information:

(1) A list of the equipment installed for compliance.

(2) A description of the physical and functional characteristics of each piece of equipment.

(3) A description of the methods which have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits are prescribed in subparagraph a of paragraphs 1 and 6 of subdivision b of subsection 6.

(4) A statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used.

11. **Semiannual report.**

a. The owner or operator of any source to which this section applies shall submit to the department on September fifteenth and March fifteenth of each year a report in writing containing the information required by this subsection. The first semiannual report is to be submitted following the first full six-month reporting period after the initial report is submitted.

b. In the case of a new source which did not have an initial startup date preceding the effective date, the first report is to be submitted within one hundred eighty days of the initial startup date.

c. Unless otherwise specified, the owner or operator shall use the test methods in appendix B to this chapter to conduct emission tests as required by paragraphs 2 and 3, unless an equivalent or an alternative method has been approved by the department. If the department finds reasonable grounds to dispute the results obtained by an equivalent or alternative method, it may require the use of a reference method. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the department may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

(1) The owner or operator shall include in the report a record of any emissions which averaged over any hour period (commencing on the hour) are in excess of the emission limits prescribed in subdivision a or b of subsection 3, subdivision a of subsection 4, or paragraph 1 of subdivision a, subdivision b, subdivision c, or subdivision d of subsection 5, or for any control system to which reactor emissions are required to be ducted in paragraph 2 of subdivision a of subsection 5 or to which fugitive emissions are required to be ducted in subparagraph b of paragraph 1, paragraph 2, paragraph 5, subparagraph b of paragraph 6, or subparagraph b of paragraph 9 of subdivision b of subsection 6. The emissions are to be measured in accordance with subsection 9.

(2) In polyvinyl chloride plants for which a stripping operation is used to attain the emission level prescribed in subdivision e of subsection 5, the owner or operator shall include in the report a record of the vinyl chloride content in the polyvinyl chloride resin. Test method 107 is to be used to determine vinyl chloride content as follows:

(a) If batch stripping is used, one representative sample of polyvinyl chloride resin is to be taken from each batch of each grade of resin immediately following the completion of the stripping operation, and identified by resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

(b) If continuous stripping is used, one representative sample of polyvinyl chloride resin is to be taken for each grade of resin processed or at intervals of eight hours for each grade of resin which is being processed, whichever is more frequent. The sample is to be taken as the resin flows out of the stripper and identified by resin type and grade and the date and time the sample was taken. The corresponding quantity of material processed by each stripper over the time period represented by the sample during the eight-hour period is to be recorded and identified by resin type and grade and the date and time it represents.

(c) The quantity of material processed by the stripper is to be determined on a dry solids basis and by a method submitted to and approved by the department.

(d) At the prior request of the department, the owner or operator shall provide duplicates of the samples required in subparagraphs a and b.

(e) The report to the department by the owner or operator is to include the vinyl chloride content found in each sample required by subparagraphs a and b; averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin processed by the stripper that calendar day, according to the following equation:

$$A_{Ti} = \frac{\sum_{i=1}^{n} P_{Gi} M_{Gi}}{Q_{Ti}} = \frac{P_{G1} M_{G1} + P_{G2} M_{G2} + \ldots PG_n + MG_n}{Q_{Ti}}$$

where:

A = twenty-four-hour average concentration of Type T_i resin in ppm (dry weight basis).

Q = total production of T_s resin over the twenty-four-hour period, in kg.

T_i = type of resin; i = 1,2.... m where m is total number of resin types produced during the twenty-four-hour period.

M = concentration of vinyl chloride in one sample of grade G_i resin, in ppm.

P = production of grade G_i resin represented by the sample, in kg.

G_i = grade of resin, e.g., G_1, G_2, and

G_3.

N = total number of grades of resin produced during the twenty-four-hour period.

(f) The owner or operator shall retain at the source and make available for inspection by the department, for a minimum of two years, records of all data needed to furnish the information required by subparagraph e. The records are to contain the following information:

[1] The vinyl chloride content found in all the samples required in subparagraphs a and b identified by the resin type and grade and the time and date of the sample.

[2] The corresponding quantity of polyvinyl chloride resin processed by the strippers, identified by the resin type and grade and the time and date it represents.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in paragraph 2 of subdivision a of subsection 5. Emissions are to be determined in accordance with paragraph 5 of subdivision g of subsection 8, except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

12. **Recordkeeping.** The owner or operator of any source to which this section applies shall retain the following information at the source and make it available for inspection by the department for a minimum of two years:

a. A record of the leaks detected by the vinyl chloride monitoring system, as required by paragraph 8 of subdivision b of subsection 6, including the concentrations of vinyl chloride as measured, analyzed, and recorded by the vinyl chloride detector, the location of each measurement, and the date and approximate time of each measurement.

b. A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by paragraph 8 of subdivision b of subsection 6, including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

c. A record of emissions measured in accordance with subsection 9.

d. A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

History: Amended effective January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-13-07. **Emission standard for equipment leaks (fugitive emissions sources) of benzene.**

1. **Applicability and designation of sources.**

   a. The provisions of this section apply to each of the following sources that are intended to operate in benzene service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this section.

   b. The provisions of this section do not apply to sources located in coke byproduct plants.

   c. (1) If an owner or operator applies for one of the exemptions in this subdivision, then the owner or operator shall maintain records, as required in subdivision i of subsection 7 of section 33-15-13-08.

      (2) Any equipment in benzene service that is located at a plant site designed to produce or use less than one thousand megagrams of benzene per year is exempt from the requirements of subsection 3.

      (3) Any process unit (defined in subsection 2 of section 33-15-13-08) that has no equipment in benzene service is exempt from the requirements of subsection 3.

d. While the provisions of this section are effective, a source to which this section applies that is also subject to the provisions of chapter 33-15-12 only will be required to comply with the provisions of this section.

2. **Definitions.** As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in this chapter, and the following terms shall have the specific meanings given them:

   a. "In benzene service" means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least ten percent benzene by weight as determined according to the provisions of subdivision d of subsection 6 of section 33-15-13-08. The provisions of subdivision d of subsection 6 of section 33-15-13-08 also specify how to determine that a piece of equipment is not in benzene service.

   b. "Semiannual" means a six-month period; the first semiannual period concludes on the last day of the last month during the one hundred eighty days following initial startup for new sources; and the first semiannual period concludes on the last day of the last full month during the one hundred eighty days after June 6, 1984, for existing sources.

3. **Standards.**

   a. Each owner or operator subject to the provisions of this section shall comply with the requirements of section 33-15-13-08.

   b. An owner or operator may elect to comply with the requirements of subsection 4 of section 33-15-13-08.

   c. An owner or operator may apply to the department and administrator for a determination of an alternative means of emission limitation that achieves a reduction in emissions of benzene at least equivalent to the reduction in emissions of benzene achieved by the controls required in this section. In doing so, the owner or operator shall comply with requirements of subsection 5 of section 33-15-13-08.

History: Amended effective October 1, 1987.
General Authority: NDCC 23-25-03

Law Implemented: NDCC 23-25-03

33-15-13-08. Emission standard for equipment leaks (fugitive emission sources).

1. **Applicability and designation of sources.**

   a. The provisions of this section apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this section.

   b. The provisions of this section apply to the sources listed in subdivision a after the date of promulgation of a specific section.

   c. While the provisions of this section are effective, a source to which this section applies that is also subject to the provisions of chapter 33-15-12 only will be required to comply with the provisions of this section.

2. **Definitions.** As used in this section, all terms not defined herein shall have the meaning given them in North Dakota Century Code chapter 23-25 or in this chapter; and the following terms shall have specific meaning given them:

   a. "Closed-vent system" means a system that is not open to 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.

   b. "Connector" means flanged, screwed, welded, or other joined fittings used to connect two pipelines or a pipeline and a piece of equipment.

   c. "Control device" means an enclosed combustion device, vapor recovery system, or flare.

   d. "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.

   e. "Equipment" means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, flange or other connector, product accumulator vessel in volatile hazardous air pollutant service, and any control devices or systems required by this section.

f. "First attempt at repair" means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.

g. "In gas/vapor service" means that a piece of equipment contains process fluid that is in the gaseous state at operating conditions.

h. "In liquid service" means that a piece of equipment is not in gas/vapor service.

i. "In situ sampling systems" means nonextractive samplers or in-line samplers.

j. "In vacuum service" means that equipment is operating at an internal pressure which is at least five kilopascals (kPa) below ambient pressure.

k. "In volatile hazardous air pollutant service" means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least ten percent by weight a volatile hazardous air pollutant (VHAP) as determined according to the provisions of subdivision d of subsection 6. The same provisions also specify how to determine that a piece of equipment is not in volatile hazardous air pollutant service.

l. "In volatile organic compounds (VOC) service" means, for the purposes of this section, that (1) the piece of equipment contains or contacts a process fluid that is at least ten percent volatile organic compounds by weight (see subsection 2 of section 33-15-12-04 for the definition of volatile organic compounds (VOC) and paragraph 4 of subdivision p of subsection 23 of section 33-15-12-04 to determine whether a piece of equipment is not in volatile organic compounds service); and (2) the piece of equipment is not in heavy liquid service as defined in subdivision b of subsection 23 of section 33-15-12-04.

m. "Open-ended valve or line" means any valve, except pressure relief valves, having one side of the valve seat in contact with process fluid and one side open to atmosphere, either directly or through open piping.

n. "Pressure release" means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device.

o. "Process unit" means equipment assembled to produce a volatile hazardous air pollutant or its derivatives as intermediates or final products, or equipment assembled to use a volatile hazardous air pollutant in the production of a product. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.

p. "Process unit shutdown" means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than twenty-four hours is not a process unit shutdown. The use of spare equipment and technically feasible by passing of equipment without stopping production is not a process unit shutdown.

q. "Product accumulator vessel" means any distillate receiver, bottoms receiver, surge control vessel, or product separator in volatile hazardous air pollutant service that is vented to atmosphere either directly or through a vacuum-producing system. A product accumulator vessel is in volatile hazardous air pollutant service if the liquid or the vapor in the vessel is at least ten percent by weight volatile hazardous air pollutant.

r. "Repaired" means that equipment is adjusted, or otherwise altered, to eliminate a leak as indicated by one of the following: an instrument reading of ten thousand parts per million or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.

s. "Semiannual" means a six-month period; the first semiannual period concludes on the last day of the last month during the one hundred eighty days following initial startup for new sources; and the first semiannual period concludes on the last day of the last full month during the one hundred eighty days after the effective date of a specific section that references this section for existing sources.

t. "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.

u. "Volatile hazardous air pollutant" means a substance regulated under this section for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene is a volatile hazardous air pollutant.

3. **Standards.**

a. General.

(1) Each owner or operator subject to the provisions of this section shall demonstrate compliance with the requirements of subsection 3 for each new and existing source as required in subsection 4 of section 33-15-13-01, except as provided in subsections 4 and 5.

(2) Compliance with this section will be determined by review of records, review of performance test results, and inspection using the methods and procedures specified in subsection 6.

(3) (a) An owner or operator may request a determination of alternative means of emission limitation to the requirements of subdivisions b, c, e, f, g, h, i, and k as provided in subsection 5.

(b) If the department and administrator make a determination that a means of emission limitation is at least a permissible alternative to the requirements of subdivisions b, c, e, f, g, h, i, and k, an owner or operator shall comply with the requirements of that determination.

(4) Each piece of equipment to which this section applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment.

(5) Equipment that is in vacuum service is excluded from the requirements of subsection 3 if it is identified as required in subdivision e of subsection 7.

b. Pumps.

(1) (a) Each pump must be monitored monthly to detect leaks by the methods specified in subdivision b of subsection 6, except as provided in paragraph 3 of subdivision a and paragraphs 4, 5, and 6 of this subdivision.

(b) Each pump must be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(2) (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) (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 subdivision j.

(b) A first attempt at repair 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 paragraph 1, provided the following requirements are met:

(a) Each dual mechanical seal system is:

[1] Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

[2] Equipped with a barrier fluid degassing reservoir that is connected by a closed-vent system to a control device that complies with the requirements of subdivision k.

[3] Equipped with a system that purges the barrier fluid into a process stream with zero volatile hazardous air pollutant emissions to atmosphere.

(b) The barrier fluid is not in volatile hazardous air pollutant service and, if the pump is covered by standards under chapter 33-15-12, is not in volatile organic compounds service.

(c) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(d) Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(e) [1]. Each sensor as described in subparagraph c of paragraph 4 is checked daily or is equipped with a audible alarm.

[2] The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(f) [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 item 2 of subparagraph e of paragraph 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 subdivision j.

[3]. A first attempt at repair must be made no later than five calendar days after each leak is detected.

(5) Any pump that is designated, as described in paragraph 2 of subdivision e of subsection 7, 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 paragraphs 1, 3, and 4 if the pump:

(a) Has no externally actuated shaft penetrating the pump housing;

(b) Is demonstrated 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 subdivision c of subsection 6; and

(c) Is tested for compliance with subparagraph b initially upon designation, annually, and at other times 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 subdivision k, it is exempt from the requirements of paragraphs 1 through 5.

(7) Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirements of subparagraph b of paragraph 1 and subparagraph d of paragraph 4, and the daily requirements of item 1 of subparagraph e of paragraph 4, provided that each pump is visually inspected as often as practicable and at least monthly.

c. Compressors.

(1) Each compressor must be equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluid to atmosphere, except as provided in paragraph 3 of subdivision a and paragraphs 8 and 9.

(2) Each compressor seal system as required in paragraph 1 must be:

(a) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure;

(b) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of subdivision k; or

(c) Equipped with a system that purges the barrier fluid into a process stream with zero volatile hazardous air pollutant emissions to atmosphere.

(3) The barrier fluid may not be in volatile hazardous air pollutant service and, if the compressor is covered by standards under chapter 33-15-12, may not be in volatile organic compounds service.

(4) Each barrier fluid system as described in paragraphs 1 through 3 must be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(5) Each sensor as required in paragraph 4 must be checked daily or must be equipped with an audible alarm unless the compressor is located within the boundary of an unmanned plant site.

(6) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(7) If the sensor indicates failure of the seal system, the barrier fluid system, or both, based on the criterion determined under paragraph 6, a leak is detected.

(8) (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 subdivision j.

(b) A first attempt at repair must be made no later than five calendar days after each leak is detected.

(9) A compressor is exempt from the requirements of paragraphs 1 through 8 if it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of subdivision k, except as provided in paragraph 9.

(10) Any compressor that is designated, as described in paragraph 2 of subdivision e of subsection 7, for no detectable emission as indicated by an instrument reading of less

than five hundred parts per million above background is exempt from the requirements of paragraphs 1 through 9 if the compressor:

(a) Is demonstrated 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 subdivision c of subsection 6; and

(b) Is tested for compliance with subparagraph a initially upon designation, annually, and at other times requested by the department.

d. Pressure relief devices in gas/vapor service.

(1) Except during pressure releases, each pressure relief device in gas/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 subdivision c of subsection 6.

(2) (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, but no later than five calendar days after each pressure release, except as provided in subdivision j.

(b) No later than five calendar days after the pressure release, the pressure relief device shall 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 subdivision c of subsection 6.

(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 subdivision k is exempt from the requirements of paragraphs 1 and 2.

e. Sampling connecting systems.

(1) Each sampling connection system must be equipped with a closed-purge system or closed-vent system, except as provided in paragraph 3 of subdivision a.

(2) Each closed-purge system or closed-vent system as required in paragraph 1 shall:

(a) Return the purged process fluid directly to the process line with zero volatile hazardous air pollutant emissions to atmosphere;

(b) Collect and recycle the purged process fluid with zero volatile hazardous air pollutant emissions to atmosphere; or

(c) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of subdivision k.

(3) In situ sampling systems are exempt from the requirements of paragraphs 1 and 2.

f. Open-ended valves or lines.

(1) (a) Each open-ended valve or line must be equipped with a cap, blind flange, plug, or a second valve, except as provided in paragraph 3 of subdivision a.

(b) The cap, blind flange, plug, or second valve will seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

(2) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid 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 shall comply with paragraph 1 at all other times.

g. Valves.

(1) Each valve must be monitored monthly to detect leaks by the method specified in subdivision b of subsection 6 and shall comply with paragraphs 2 through 5, except as provided in paragraph 6, 7, and 8, subsection 4, and paragraph 3 of subdivision a.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) (a) Any valve for which a leak is not detected for two successive months may be monitored the first month of every 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) (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 subdivision j.

(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 practicable:

(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 paragraph 2 of subdivision e of subsection 7, 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 paragraph 1 if the valve:

(a) Has no external actuating mechanism in contact with the process fluid;

(b) Is operated with emissions less than five hundred parts per million above background, as measured by the method specified in subdivision c of subsection 6; and

(c) Is tested for compliance with subparagraph b initially upon designation, annually, and at other times required by the department.

(7) Any valve that is designated, as described in paragraph 1 of subdivision f of subsection 7, as an unsafe-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph 1; and

(b) The owner or operator of the valve has 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 paragraph 2 of subdivision f of subsection 7, as a difficult-to-monitor valve is exempt from the requirements of paragraph 1 if:

(a) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than two meters above a support surface;

(b) The process unit within which the valve is located is an existing process unit; and

(c) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

h. Pressure relief devices in liquid service and flanges and other connectors.

(1) Pressure relief devices in liquid service and flanges and other connectors must be monitored

within five days by the method specified in subdivision b of subsection 6 if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method, except as provided in paragraph 3 of subdivision a.

(2) If an instrument reading of ten thousand parts per million or greater is measured, a leak is detected.

(3) (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 subdivision j.

(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 paragraph 5 of subdivision g.

i. Product accumulator vessels. Each product accumulator vessel must be equipped with a closed-vent system capable of capturing and transporting any leakage from the vessel to a control device as described in subdivision k, except as provided in paragraph 3 of subdivision a.

j. Delay of repair.

(1) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

(2) Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the process and that does not remain in volatile hazardous air pollutant service.

(3) Delay of repair for valves will be allowed if:

(a) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from the delay of repair; and

(b) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with subdivision k.

(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; and

(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 process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process 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 process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than six months after the first process unit shutdown.

k. Closed-vent system and control devices.

(1) Owners or operators of closed-vent systems and control devices used to comply with provisions of this section shall comply with the provisions of this section, except as provided in paragraph 3 of subdivision a.

(2) Vapor recovery systems (for example, condensers and absorbers) must be designed and operated to recover the organic vapors vented to them with an efficiency of ninety-five percent or greater.

(3) Enclosed combustion devices must be designated and operated to reduce the volatile hazardous air pollutant emissions vented to them with an efficiency of ninety-five percent or greater or to provide a minimum residence time of 0.50 seconds at a minimum temperature of seven hundred sixty degrees Celsius [1400 degrees Fahrenheit].

(4) Flares used to comply with this section shall comply with the requirements of subsection 14 of section 33-15-12-01.

(5) Owners or operators of control devices that are used to comply with the provisions of this section shall monitor these control devices to ensure that they are operated and maintained in conformance with their design.

(6) (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 inspections, as determined by the methods specified in subdivision c of subsection 6.

(b) Closed-vent systems must be monitored to determine compliance with this subsection initially in accordance with subsection 4 of section 33-15-13-01, annually, and at other times requested by the department.

(c) Leaks, as indicated by an instrument reading greater than five hundred parts per million and visual inspections, must be repaired as soon as practicable, but not later than fifteen calendar days after the leak is detected.

(d) A first attempt at repair must be made no later than five calendar days after the leak is detected.

(7) Closed-vent systems and control devices used to comply with provisions of this section shall be operated at all times when emissions may be vented to them.

4. **Alternative standards for valves in volatile hazardous air pollutant service.**

a. Allowable percentage of valves leaking.

(1) An owner or operator may elect to have all valves within a process unit to comply with an allowable percentage of valves leaking of equal to or less than two percent.

(2) The following requirements must be met if an owner or operator decides to comply with an allowable percentage of valves leaking:

(a) An owner or operator must notify the department that the owner or operator has elected to have all valves within a process unit comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in subdivision d of subsection 8.

(b) A performance test as specified in paragraph 3 of this subsection 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 paragraphs 4 and 5 of subdivision g of subsection 3.

(3) Performance tests must be conducted in the following manner:

(a) All valves in volatile hazardous air pollutants service within the process unit must be monitored within one week by the methods specified in subdivision b of subsection 6.

(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 in volatile hazardous air pollutant service for which leaks are detected by the number of valves in volatile hazardous air pollutant service within the process unit.

(4) Owners or operators who elect to have all valves comply with this alternative standard may not have a process unit with a leak percentage greater than two percent.

(5) If an owner or operator decides no longer to comply with this subdivision, the owner or operator must notify the department in writing that the work practice standard described in paragraphs 1 through 5 of subdivision g of subsection 3 will be followed.

b. Skip period leak detection and repair.

(1) (a) An owner or operator may elect for all valves within a process unit to comply

with one of the alternative work practices specified in subparagraphs b and c of paragraph 2.

(b) An owner or operator must notify the department before implementing one of the alternative work practices, as specified in subdivision d of subsection 8.

(2) (a) An owner or operator shall comply initially with the requirements for valves, as described in subdivision g of subsection 3.

(b) After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in volatile hazardous air pollutant service.

(c) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in volatile hazardous air pollutant service.

(d) If the percentage of valves leaking is greater than two, the owner or operator shall comply with the requirements, as described in subdivision g of subsection 3, but may again elect to use this subdivision.

5. **Alternative means of emission limitation.**

a. Permission to use an alternative means of emission limitation under section 112(e)(3) of the Clean Air Act shall be governed by the following procedures:

b. Where the standard is an equipment, design, or operational requirement:

(1) Each owner or operator applying for permission is responsible for collecting and verifying test data for an alternative means of emission limitation, test data for the equipment, design, and operational requirements.

(2) The department and administrator may condition the permission on requirements that may be

necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.

c. Where the standard is a work practice:

(1) Each owner or operator applying for permission is responsible for collecting and verifying test data for an alternative means of emission limitation.

(2) For each source for which permission is required, the emission reduction achieved by the required work practices must be demonstrated for a minimum period of twelve months.

(3) For each source for which permission is requested, the emission reduction achieved by the alternative means of emission limitation must be demonstrated.

(4) Each owner or operator applying for permission shall commit, in writing, each source to work practices that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practices.

(5) The department and administrator will compare the demonstrated emission reduction for the alternative means of emission limitation to the demonstrated emission reduction for the required work practices and will consider the commitment in paragraph 4.

(6) The department and administrator may condition the permission on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practices of this subsection.

d. An owner or operator may offer a unique approach to demonstrate the alternative means of emission limitation.

e. (1) Manufacturers of equipment used to control equipment leaks of a volatile hazardous air pollutant may apply to the department for permission for an alternative means of emission limitation that achieves a reduction in emissions of the volatile hazardous air pollutant achieved by the equipment, design, and operational requirements of this section.

(2) The department and administrator will grant permission according to the provisions of subdivisions b, c, and d.

6. **Test methods and procedures.**

a. Each owner or operator subject to the provisions of this section shall comply with the test methods and procedures requirements provided in this section.

b. Monitoring, as required in subsections 3, 4, and 5, shall comply with the following requirements:

(1) Monitoring shall comply with reference method 21.

(2) The detection instrument shall meet the performance criteria of reference method 21.

(3) The instrument shall be calibrated before use on each day of its use by the procedures specified in reference method 21.

(4) Calibration gases shall be:

(a) Zero air (less than ten parts per million of hydrocarbon in air); and

(b) 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.

(5) The instrument probe must be traversed around all potential leak interfaces as close to the interface as possible as described in reference method 21.

c. When equipment is tested for compliance with no visible emissions, as required in paragraph 5 of subdivision b, paragraph 9 of subdivision c, subdivision d, paragraph 6 of subdivision g, and paragraph 6 of subdivision k of subsection 3, the test shall comply with the following requirements:

(1) The requirements of paragraphs 1 through 4 of subdivision b shall apply.

(2) The background level must be determined, as set forth in reference method 21.

(3) The instrument probe must be traversed around all potential leak interfaces as close to the

interface as possible as described in reference method 21.

(4) 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.

d. (1) Each piece of equipment within a process unit that can conceivably contain equipment in volatile hazardous air pollutant service is presumed to be in volatile hazardous air pollutant service unless an owner or operator demonstrates that the piece of equipment is not in volatile hazardous air pollutant service. For a piece of equipment to be considered not in volatile hazardous air pollutant service, it must be determined that the percent volatile hazardous air pollutant content can be reasonably expected never to exceed ten percent by weight. For purposes of determining the percent volatile hazardous air pollutant content of the process fluid that is contained in or contacts equipment, procedures that conform to the methods described in A.S.T.M. method D-2267 must be used.

(2) (a) An owner or operator may use engineering judgment rather than the procedures in paragraph 1 to demonstrate that the percent volatile hazardous air pollutant content does not exceed ten percent by weight, provided that the engineering judgment demonstrates that the volatile hazardous air pollutant content clearly does not exceed ten percent by weight. When an owner or operator and the department do not agree on whether a piece of equipment is not in volatile hazardous air pollutant service, however, the procedures in paragraph 1 of this subdivision must be used to resolve the disagreement.

(b) If an owner or operator determines that a piece of equipment is in volatile hazardous air pollutant service, the determination can be revised only after following the procedures in paragraph 1.

(3) Samples used in determining the percent volatile hazardous air pollutant content must be representative of the process fluid that is

contained in or contacts the equipment or the gas being combusted in the flare.

e. (1) Reference method 22 must be used to determine compliance of flares with the visible emission provisions of this section.

(2) The presence of a flare pilot flame must be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(3) The net heating value of the gas being combusted in a flare must be calculated using the following equation:

$$H_T = K \sum_{i=1}^{N} C_i H_i$$

where:

H_T = Net heating value of the sample MJ/scm; where the net enthalpy per mole of off-gas is based on combustion at twenty-five degrees Celsius and seven hundred sixty mm Hg, but the standard temperature for determining the volume corresponding to one mole is twenty degrees Celsius.

K = Constant, 1.74×10^{-7} (1/ppm)(g mole/scm)(MJ/kcal) where standard temperature for (g mole/scm) is twenty degrees Celsius.

C_i = Concentration of sample component i in ppm, as measured by reference method 18 of appendix A of chapter 33-15-12 and A.S.T.M. D2504-67 (reapproved 1977).

H_i = Net heat of combustion of sample component i, kcal/g mole. The heats of combustion may be determined using A.S.T.M. D2382-76 if published values are not available or cannot be calculated.

(4) 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 method 2, 2A, 2C, or 2D, as appropriate, by the unobstructed (free) cross-section area of the flare tip.

(5) The maximum permitted velocity, V_{max} for air-assisted flares must be determined by the following equation:

$$V_{max} = 8.76 + 0.7084 (H_T)$$

where:

V_{max} = Maximum permitted velocity, m/sec
8.706 = Constant.
0.7084 = Constant.
H_T = The net heating value as determined in paragraph 3.

7. **Recordkeeping requirements.**

a. (1) Each owner or operator subject to the provisions of this section shall comply with the recordkeeping requirements of this subsection.

(2) An owner or operator of more than one process unit subject to the provisions of this section may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by each process unit.

b. When each leak is detected as specified in subdivisions b, c, g, and h of subsection 3, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, must be attached to the leaking equipment.

(2) The identification on a valve may be removed after it has been monitored for two successive months as specified in paragraph 3 of subdivision g of subsection 3 and no leak has been detected during those two months.

(3) The identification on equipment, except on a valve, may be removed after it has been repaired.

c. When each leak is detected, as specified in subdivisions b, c, g, and h of subsection 3, the following information must be recorded in a log and shall be kept for two years in a readily accessible location:

(1) The instrument and operator identification numbers and the equipment identification number.

(2) The date the leak was detected and the dates of each attempt to repair the leak.

(3) Repair methods applied in each attempt to repair the leak.

(4) "Above ten thousand" if the maximum instrument reading measured by the methods specified in subdivision a of subsection 6 after each repair attempt is equal to or greater than ten thousand parts per million.

(5) "Repair delayed" and the reason for the delay if a leak is not repaired within fifteen calendar days after discovery of the leak.

(6) The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

(7) The expected date of successful repair of the leak if a leak is not repaired within fifteen calendar days.

(8) Dates of process unit shutdowns that occur while the equipment is unrepaired.

(9) The date of successful repair of the leak.

d. The following information pertaining to the design requirements for closed-vent systems and control devices described in subdivision k of subsection 3 must be recorded and kept in a readily accessible location:

(1) Detailed schematics, design specifications, and piping and instrumentation diagrams.

(2) The dates and descriptions of any changes in the design specifications.

(3) A description of the parameter or parameters monitored, as required in paragraph 5 of subdivision k of subsection 3, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

(4) Periods when the closed-vent systems and control devices required in subdivisions b, c, d, e, and i of subsection 3 are not operated as designed, including periods when a flare pilot light does not have a flame.

(5) Dates of startups and shutdowns of the closed-vent systems and control devices required in subdivisions b, c, d, e, and i of subsection 3.

e. The following information pertaining to all equipment subject to the requirements in subsection 3 must be recorded in a log that is kept in a readily accessible location:

(1) A list of identification numbers for equipment subject to the requirements of this section.

(2) (a) 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 paragraph 5 of subdivision b, paragraph 9 of subdivision c, and paragraph 6 of subdivision g of subsection 3.

(b) The designation of this equipment as subject to the requirements of paragraph 5 of subdivision b, paragraph 9 of subdivision c, and paragraph 6 of subdivision g of subsection 3 must be signed by the owner or operator.

(3) A list of equipment identification numbers for pressure relief devices required to comply with paragraph 1 of subdivision d of subsection 3.

(4) (a) The dates of each compliance test required in paragraph 5 of subdivision b, paragraph 9 of subdivision c, and paragraph 6 of subdivision g of subsection 3.

(b) The background level measured during each compliance test.

(c) The maximum instrument reading measured at the equipment during each compliance test.

(5) A list of identification numbers for equipment in vacuum service.

f. The following information pertaining to all valves subject to the requirements of paragraphs 7 and 8 of subdivision g of subsection 3 must be recorded in a log that is kept in a readily accessible location:

(1) 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.

(2) 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 planned schedule for monitoring each valve.

g. The following information must be recorded for valves complying with subdivision b of subsection 4.

(1) A schedule for monitoring.

(2) The percent of valves found leaking during each monitoring period.

h. The following information must be recorded in a log that is kept in a readily accessible location:

(1) Design criterion required in subparagraph e of paragraph 4 of subdivision b and paragraph 6 of subdivision c of subsection 3 and an explanation of the design criterion; and

(2) Any changes to this criterion and the reasons for the changes.

i. The following information must be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in the applicability subsection and other specific sections:

(1) An analysis demonstrating the design capacity of the process unit.

(2) An analysis demonstrating that equipment is not in volatile hazardous air pollutant service.

j. Information and data used to demonstrate that a piece of equipment is not in volatile hazardous air pollutant service must be recorded in a log that is kept in a readily accessible location.

8. **Reporting requirements.**

a. (1) An owner or operator of any piece of equipment to which this section applies shall submit a statement in writing notifying the department that the requirements of subsections 3, 6, 7, and 8 are being implemented.

(2) In the case of an existing source or a new source which has an initial startup date preceding the effective date, the statement is to be submitted within ninety days of the effective date, unless a compliance schedule is granted under subsection 9 of section 33-15-13-01, along with the information required under subsection 8 of section 33-15-13-01. If a compliance schedule is granted, the statement is to be submitted on a date scheduled by the department.

(3) In the case of new sources which did not have an initial startup date preceding the effective date, the statement must be submitted with the application for approval of construction, as described in subsection 6 of section 33-15-13-01.

(4) The statement is to contain the following information for each source:

(a) Equipment identification number and process unit identification.

(b) Type of equipment (for example, a pump or pipeline valve).

(c) Percent by weight volatile hazardous air pollutant in the fluid at the equipment.

(d) Process fluid state at the equipment (gas/vapor or liquid).

(e) Method of compliance with the standard (for example, "monthly leak detection and repair" or "equipped with dual mechanical seals").

b. A report must be submitted to the department semiannually starting six months after the initial report required in subdivision a that includes the following information:

  (1) Process unit identification.

  (2) For each month during the semiannual reporting period.

    (a) Number of valves for which leaks were detected as described in paragraph 2 of subdivision g of subsection 3 and subdivision b of subsection 4.

    (b) Number of valves for which leaks were not repaired as required in paragraph 4 of subdivision g of subsection 3.

    (c) Number of pumps for which leaks were detected as described in paragraph 2 and subparagraph f of paragraph 4 of subdivision b of subsection 3.

    (d) Number of pumps for which leaks were not repaired as required in paragraph 3 and subparagraph f of paragraph 4 of subdivision b of subsection 3.

    (e) Number of compressors for which leaks were detected as described in paragraph 6 of subdivision c of subsection 3.

    (f) Number of compressors for which leaks were not repaired as required in paragraph 7 of subdivision c of subsection 3.

    (g) The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.

  (3) Dates of process unit shutdowns which occurred within the semiannual reporting period.

  (4) Revisions to items reported according to subdivision a if changes have occurred since the initial report or subsequent revisions to the initial report.

  (5) The results of all performance testing to determine compliance with paragraph 5 of subdivision b, paragraph 9 of subdivision c,

paragraph 1 of subdivision d, paragraph 6 of subdivision g, paragraph 6 of subdivision k of subsection 3, and subsection 4 conducted within the semiannual reporting period.

c. In the first report submitted as required in subdivision a, the report must include a reporting schedule stating the months that semiannual reports shall be submitted. Subsequent reports must be submitted according to that schedule, unless a revised schedule has been submitted in a previous semiannual report.

d. An owner or operator electing to comply with the provisions of subsection 4 shall notify the department of the alternative standard selected ninety days before implementing either of the provisions.

e. An application for approval of construction or modification, subdivision a of subsection 4 and subsection 6 of section 33-15-13-01, will not be required if:

(1) The new source complies with the standard in subsection 3;

(2) The new source is not part of the construction of a process unit; and

(3) In the next semiannual report required by subdivision b, the information in paragraph 4 of subdivision a is reported.

History: Effective October 1, 1987; January 1, 1989.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

APPENDIX

The appendix references, as specified within chapter 33-15-13, are identical to those specified in appendix A and appendix B, as amended, of Title 40, Code of Federal Regulations, Part 61 [40 CFR 61].

Appendix A - Compliance Status Information

Appendix B - Test Methods

CHAPTER 33-15-14
DESIGNATED AIR CONTAMINANT SOURCES, PERMIT TO CONSTRUCT, PERMIT TO OPERATE

Section
33-15-14-01 Designated Air Contaminant Sources
33-15-14-02 Permit to Construct
33-15-14-03 Permit to Operate
33-15-14-04 Permit Fees
33-15-14-05 Common Provisions Applicable to Both Permit to Construct and Permit to Operate

33-15-14-01. Designated air contaminant sources. Pursuant to subsection 1 of North Dakota Century Code section 23-25-04.1, stationary sources within the following source categories are designated as air contaminant sources capable of causing or contributing to air pollution, either directly or indirectly.

1. The following chemical process facilities:

    a. Adipic acid.

    b. Ammonia.

    c. Ammonium nitrate.

    d. Carbon black.

    e. Charcoal.

    f. Chlorine.

    g. Chlor-alkali manufacturing.

    h. Detergent and soap.

    i. Explosives (trinitrotoluene and nitrocellulose).

    j. Hydrochloric acid.

    k. Hydrofluoric acid.

    l. Nitric acid.

    m. Paint and varnish manufacturing.

    n. Phosphoric acid.

    o. Phthalic anhydride.

p. Plastics manufacturing.

q. Printing ink manufacturing.

r. Sodium carbonate.

s. Sulfur production and recovery.

t. Sulfuric acid.

u. Synthetic fibers.

v. Synthetic rubber.

w. Terephathalic acid.

x. Alcohol.

2. The following food and agricultural facilities:

   a. Agricultural drying and dehydrating operations.

   b. Ammonium nitrate.

   c. Cheese whey drying and processing.

   d. Coffee roasting.

   e. Cotton ginning.

   f. Feed, grain, and seed handling and processing.

   g. Fermentation processes.

   h. Fertilizers.

   i. Fishmeal processing.

   j. Meat smokehouses.

   k. Orchard heaters.

   l. Potato processing.

   m. Rendering plants.

   n. Starch manufacturing.

   o. Sugarbeet processing.

3. The following metallurgical facilities:

   a. Primary metals facilities:

        (1) Aluminum ore reduction.
        (2) Copper smelters.
        (3) Ferroalloy production.
        (4) Iron and steel mills.
        (5) Lead smelters.
        (6) Metallurgical coke manufacturing.
        (7) Zinc.
    b. Secondary metals facilities:
        (1) Aluminum operations.
        (2) Brass and bronze smelting.
        (3) Ferroalloys.
        (4) Ferrous foundries.
        (5) Gray iron foundries.
        (6) Lead smelting.
        (7) Magnesium smelting.
        (8) Nonferrous foundries.
        (9) Steel foundries.
        (10) Zinc processes.
4. The following mineral products facilities:
    a. Asphalt roofing.
    b. Asphaltic concrete plants.
    c. Bricks and related clay refractories.
    d. Calcium carbide.
    e. Ceramic and clay processes.
    f. Clay and fly ash sintering.
    g. Coal cleaning.
    h. Coal drying.

    i. Coal mining.
    j. Coal handling and processing.
    k. Concrete batching.
    l. Fiberglass manufacturing.
    m. Frit manufacturing.
    n. Glass manufacturing.
    o. Gypsum manufacturing.
    p. Leonardite mining, drying, and processing.
    q. Lime manufacturing.
    r. Mineral wool manufacturing.
    s. Paperboard manufacturing.
    t. Perlite manufacturing.
    u. Phosphate rock preparation.
    v. Portland cement manufacturing, bulk handling, and storage.
    w. Rock, stone, gravel, and sand quarrying and processing.
    x. Uranium mining, milling, and enrichment.

5. The following energy and fuel facilities:
    a. Coal gasification.
    b. Coal liquefaction
    c. Crude oil and natural gas production.
    d. Fossil fuel steam electric plants.
    e. Fuel conversion plants.
    f. Natural gas processing.
    g. Petroleum refining and petrochemical operations.
    h. Petroleum storage (storage tanks and bulk terminals).

6. The following wood processing facilities:

   a. Plywood veneer and layout operations.

   b. pulpboard manufacturing.

   c. Wood pulping.

7. The following gaseous, liquid, and solid waste disposal facilities:

   a. Afterburners.

   b. Automobile body incinerators.

   c. Conical burners.

   d. Flares.

   e. Gaseous and liquid organic compounds incinerators.

   f. Industrial waste incinerators.

   g. Open burning.

   h. Open pit incinerators.

   i. Pathological waste incinerators.

   j. Refuse incinerators.

   k. Scrap metal salvage incinerators.

   l. Sewage sludge incinerators.

   m. Wood waste incinerators.

8. The following miscellaneous facilities:

   a. Dry cleaning and laundry operations.

   b. Fuel burning equipment.

   c. Internal combustion engines.

   d. Surface coating operations.

   e. Wastewater treatment plants (including lagoons).

   f. Water cooling towers and water cooling ponds.

9. Any category of sources to which a federal standard of performance applies.

10. Any source which emits a contaminant subject to a national emission standard for hazardous air pollutants.

11. Any source which is subject to review under federal significant deterioration of air quality regulations.

12. Any source which is determined by the department to have an emission which affects state ambient air quality standards.

History: Amended effective October 1, 1987.
General Authority: NDCC 28-32-01
Law Implemented: NDCC 23-25-04.1

33-15-14-02. Permit to construct.

1. **Permit to construct required.** No construction, installation, or establishment of a new stationary source within a source category designated in section 33-15-14-01 may be commenced unless the owner or operator thereof shall file an application for, and receive, a permit to construct in accordance with this chapter. This requirement shall also apply to any source for which a federal standard of performance has been promulgated prior to such filing of an application for a permit to construct. A list of sources for which a federal standard has been promulgated, and the standards which apply to such sources, must be available at the department's offices.

2. **Application for permit to construct.**

    a. Application for a permit to construct a new installation or source must be made by the owner or operator thereof on forms furnished by the department.

    b. A separate application is required for each new installation or source subject to this chapter.

    c. Each application must be signed by the applicant, which signature shall constitute an agreement that the applicant will assume responsibility for the construction or operation of the new installation or source in accordance with this article and will notify the department, in writing, of the startup of operation of such source.

3. **Alterations to source.**

    a. The addition to or enlargement of or replacement of or major alteration in any stationary source, already existing, which is undertaken pursuant to an approved compliance schedule for the reduction of emissions therefrom, shall be exempt from the requirements of this section.

b. Any physical change in, or change in the method of operation of, a stationary source already existing which increases or may increase the emission rate of any pollutant for which an ambient air quality standard has been promulgated under this article or which results in the emission of any such pollutant not previously emitted must be considered to be construction, installation, or establishment of a new source, except that:

  (1) Routine maintenance, repair, and replacement may not be considered a physical change.

  (2) The following may not be considered a change in the method of operation:

    (a) An increase in the production rate, if such increase does not exceed the operating design capacity of the source.

    (b) An increase in the hours of operation.

4. **Submission of plans - Deficiencies in application.** As part of an application for a permit to construct, the department may require the submission of plans, specifications, siting information, emission information, descriptions and drawings showing the design of the installation or source, the manner in which it will be operated and controlled, the emissions expected from it, and the effects on ambient air quality. Any additional information, plans, specifications, evidence, or documentation that the department may require must be furnished upon request. Within twenty days of the receipt of the application, the department shall advise the owner or operator of the proposed source of any deficiencies in the application. In the event of a deficiency, the date of receipt of the application is the date upon which all requested information is received.

a. Determination of the effects on ambient air quality as may be required under this section must be based on the applicable requirements specified in the "Guideline on Air Quality Models (Revised)" (United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711) as supplemented by the "North Dakota Guideline for Air Quality Modeling Analyses" (North Dakota state department of health and consolidated laboratories, division of environmental engineering). These documents are incorporated by reference.

b. Where an air quality impact model specified in the documents incorporated by reference in subdivision a is inappropriate, the model may be modified or another model substituted provided:

(1) Any modified or nonguideline model must be subject to notice and opportunity for public comment under subsection b.

(2) The applicant must provide to the department adequate information to evaluate the applicability of the modified or nonguideline model. Such information must include, but is not limited to, methods like those outlined in the "Interim Procedures for Evaluating Air Quality Models (Revised)" (United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711).

(3) Written approval from the department must be obtained for any modification or substitution.

(4) Written approval from the United States environmental protection agency must be obtained for any modification or substitution prior to the granting of a permit under this chapter.

5. **Review of application - Standard for granting permits to construct.** The department shall review any plans, specifications, and other information submitted in application for a permit to construct and from such review shall, within thirty days of the receipt of the completed application, make the following preliminary determinations:

a. Whether the proposed project will be in accord with this article, including whether the operation of any new stationary source at the proposed location will ~~result in any~~ cause or contribute to a violation of any applicable ambient air quality standards ~~being exceeded~~. A new stationary source will be considered to cause or contribute to a violation of an ambient air quality standard when such source would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable ambient standard:

Contaminant	Averaging Time (hours)				
	Annual $(\mu g/m^3)$	24 $(\mu g/m^3)$	8 $(\mu g/m^3)$	3 $(\mu g/m^3)$	1 $(\mu g/m^3)$
SO_2	1.0	5		25	25
PM_{10}	1.0	5			
NO_2	1.0				25
CO			500		2000

b. Whether the proposed project will provide all known available and reasonable methods of emission control. Whenever a standard of performance is applicable to the source, compliance with this criterion will require provision for emission control which will, at least, satisfy such standards.

6. **Public participation - Final action on application.** This subsection shall apply only to those affected facilities designated under chapters 33-15-12, 33-15-13, and 33-15-15 or for construction of other sources for which the actual emissions of any contaminant would be greater than fifty tons [45.36 metric tons] per year, one thousand pounds [453.59 kilograms] per day, or one hundred pounds [45.36 kilograms] per hour, whichever is most restrictive or for which the department has determined to have a major impact on air quality or for which a request for a public comment period has been received from the public. The department shall:

   a. Within thirty days of the receipt of the completed application, make available in at least one location in the county or counties in which the proposed project is to be located, a copy of its preliminary determinations and copies of or a summary of the information considered in making such preliminary determinations.

   b. Publish notice to the public by prominent advertisement, within thirty days of the receipt of the completed application, in the region affected, of the opportunity for written comment on the preliminary determinations. The public notice must include the proposed location of the source.

   c. Within thirty days of the receipt of the completed application, deliver a copy of the notice to the applicant and to officials and agencies having cognizance over the locations where the source will be situated as follows: State and local air pollution control agencies, the chief executive of the city and county; any comprehensive regional land use planning agency; the regional administrator of the United States environmental protection agency; and any state, federal land manager, or Indian governing body whose lands will be significantly affected by the source's emissions.

d. Allow thirty days for public comment.

e. Consider all public comments properly received, in making the final decision on the application.

f. Allow the applicant to submit written responses to public comments received by the department, within ten days of the receipt of such comments.

g. Take final action on the application within thirty days of the close of the public comment period.

7. **Denial of permit to construct.** If, after review of all information received, including public comment with respect to any proposed project, the department makes the determination of any one of subdivision a or b of subsection 5 in the negative, it shall deny the permit and notify the applicant, in writing, of the denial to issue a permit to construct.

   If a permit to construct is denied, the construction, installation, or establishment of the new stationary source shall be unlawful. No permit to construct or modify may be granted if such construction, or modification, or installation, will result in a violation of these regulations or in a violation of the ambient air quality standards.

8. **Issuance of permit to construct.** If, after review of all information received, including public comment with respect to any proposed project, the department makes the determination of subdivision a or b of subsection 5 in the affirmative, the department shall issue a permit to construct. The permit may provide for conditions of operation as provided in subsection 9.

9. **Permit to construct - conditions.** The department may impose any reasonable conditions upon a permit to construct, including conditions concerning:

   a. Sampling, testing, and monitoring of the facilities or the ambient air or both.

   b. Trial operation and performance testing.

   c. Prevention and abatement of nuisance conditions caused by operation of the facility.

   d. Recordkeeping and reporting.

   e. Compliance with applicable rules and regulations in accordance with a compliance schedule.

   The violation of any conditions so imposed may result in revocation or suspension of the permit or other appropriate enforcement action.

10. **Scope.**

a. The issuance of a permit to construct for any source does not affect the responsibility of an owner or operator to comply with applicable portions of a control strategy affecting the source.

b. A permit to construct shall become invalid if construction is not commenced within eighteen months after receipt of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time. The department may extend the eighteen-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within eighteen months of the projected and approved commencement date. In cases of major construction projects involving long lead times and substantial financial commitments, the department may provide by a condition to the permit a time period greater than eighteen months when such time extension is supported by sufficient documentation by the applicant.

11. **Transfer of permit to construct.** To ensure the responsible owners or operators, or both, are identified, the holder of a permit to construct may not transfer such permit without prior approval of the department.

History: Amended effective March 1, 1980; February 1, 1982; October 1, 1987 ; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-04.1, 23-25-04.2

33-15-14-03. Permit to operate.

1. **Permit to operate required.**

a. No person may operate or cause the routine operation of an installation or source designated in section 33-15-14-01 without applying for and obtaining, in accordance with this chapter, a permit to operate. Application for a permit to operate a new installation or source must be made at least thirty days prior to startup of routine operation.

b. No person may operate or cause the operation of an installation or source in violation of any permit to operate, any condition imposed upon a permit to operate or in violation of this article.

2. **Application for permit to operate.**

   a. Application for a permit to operate must be made by the owner or operator thereof on forms furnished by the department.

   b. Each application for a permit to operate must be accompanied by such performance tests results, information, and records as may be required by the department to determine whether the requirements of this article will be met. Such information may also be required by the department at any time when the source is being operated to determine compliance with this article.

   c. Each application must be signed by the applicant, which signature shall constitute an agreement that the applicant will assume responsibility for the operation of the installation or source in accordance with this article.

3. **Standards for granting permits to operate.** No permit to operate may be granted unless the applicant shows to the satisfaction of the department that the source is in compliance with this article.

4. **Performance testing.** Before a permit to operate is granted, the applicant, if required by the department, shall conduct performance tests in accordance with methods and procedures required by this article or methods and procedures approved by the department. Such tests must be made at the expense of the applicant. The department may monitor such tests and may also conduct performance tests.

5. **Action on applications.**

   a. The department shall act within thirty days after receipt of an application for a permit to operate a new installation or source, and within thirty days after receipt of an application to operate an existing installation or source, and shall notify the applicant, in writing, of the approval, conditional approval, or denial of the application.

   b. The department shall set forth in any notice of denial the reasons for denial. A denial must be without prejudice to the applicant's right to a hearing before the department or for filing a further application after revisions are made to meet objections specified as reasons for the denial.

6. **Permit to operate - Conditions.** The department may impose any reasonable conditions upon a permit to operate, including conditions concerning:

a. Sampling, testing, and monitoring of the facilities or ambient air or both.

b. Trial operation and performance testing.

c. Prevention and abatement of nuisance conditions caused by operation of the facility.

d. Recordkeeping and reporting.

e. Compliance with applicable rules and regulations in accordance with a compliance schedule.

7. **Suspension or revocation of permit to operate.**

a. The department may suspend or revoke a permit to operate for violation of this article and any permit conditions.

b. Suspension or revocation of a permit to operate shall become final ten days after serving notice on the holder of the permit.

c. A permit to operate which has been revoked pursuant to this article must be surrendered forthwith to the department.

d. No person may operate or cause the operation of an installation or source if the department denies or revokes a permit to operate.

8. **Transfer of permit to operate.** The holder of a permit to operate may not transfer it without the prior approval of the department.

9. **Renewal of permit to operate.**

a. Every permit to operate issued by the department after February 9, 1976, shall become void upon the third anniversary of its issuance. Applications for renewal of such permits must be submitted sixty days prior to such anniversary date. The department shall approve or disapprove such application within sixty days.

b. The department may amend permits issued prior to February 9, 1976, so as to provide for voidance upon the third anniversary of its issuance.

History: Amended effective February 1, 1982; October 1, 1987.
General Authority: NDCC 28-32-02
Law Implemented: NDCC 23-25-04.1

33-15-14-04. Permit fees.

1. **Permit to construct.**

   Any construction, installation, or establishment of a new stationary source requiring a permit to construct under subsections 1 and 3 of section 33-15-14-02 is required to pay a permit to construct application processing fee to the North Dakota state department of health and consolidated laboratories. A filing fee of one hundred fifty dollars plus an application processing fee based on actual processing costs, including computer data processing costs, incurred by the department for all sources which involve a major analysis the cost of which would exceed one hundred fifty dollars, as determined by the department. The fee must be paid on the following basis:

   a. The filing fee of one hundred fifty dollars must be submitted with the permit application.

   b. A record of all permits to construct application processing costs incurred must be maintained by the department.

   c. Upon request, the department will inform the applicant of the probable total processing fee and the billing schedule that will be utilized in processing the application. If the applicant chooses, the applicant may withdraw the application at this point without paying any processing fees.

   d. Following the end of the public comment period or the public hearing, or both, and after final determinations on the application have been made, a final statement will be sent to the applicant containing the remaining actual processing costs incurred by the department.

2. **Permit to operate.**

   a. The owner or operator of each installation operating under a permit, except state-owned installations, shall pay an annual permit fee based on the following table:

Classification	Annual Cost
A1 $\leq$ 15000 tons/year emissions	$1,500
A1 $\geq$ 15000 tons/year emissions	1,100
A2	300
A1-3	100
Other	100
Ambient Monitor Site	400
Ambient Hi-Vol Station	150
Exempt	NC

The following criteria is used in classifying sources:

A1: A source that emits more than one hundred tons per year of any pollutant regardless of whether pollution controls are operating, and is scheduled to be inspected annually.

A2: A source that emits less than one hundred tons per year of any pollutant but has the potential to emit more than one hundred tons per year without controls, and is scheduled to be inspected at least once every two years.

A1-3: Same as A1 except that the source is scheduled to be inspected at least once every three years.

Other: As designated by the department.

Exempt: As designated by the department.

Ambient monitoring charges for sources operating both ambient air monitoring sites and hi-vol stations at the same site will be assessed a maximum of four hundred dollars per site.

b. The following activities conducted by the department are not included in the annual costs and will be charged to affected sources based on the actual costs incurred by the department:

(1) Observation of source or performance specification testing, or both.

(2) Audits of source operated ambient air monitoring networks.

An accounting of the actual costs incurred under this subdivision must accompany the notice of the annual permit fee.

c. All sources shall be classified taking into consideration the emissions from each installation, for the emissions of hydrocarbons, particulate matter, sulfur dioxide, carbon monoxide, and nitrogen oxides. In the case of boilers with heat inputs greater than or equal to 250 x 10^6 Btu/hr the fee must be assessed per boiler. The department shall determine the emission factors applicable to each permit or group of permits based on representative source tests, "AP-42, Compilation of Air Pollution Emission Factors" or other more reliable data. "Emission factor" as used in this section means the amount of an air contaminant emitted per unit of time. The annual actual emissions shall be based on the emission factor and the hours of operation per year from the annual emission inventory report.

d. A notice of the annual permit fee due must be sent to the permittee by the department. The fee is due sixty days following receipt of such notice.

e. The classification of "Other" and "Exempt" must be designated by the department on a case-by-case basis.

3. Any source that initiates operation under a permit to construct prior to receiving a permit to operate is subject to the fees outlined in subsection 2.

History: Amended effective October 1, 1987.
General Authority: NDCC 28-32-02
Law Implemented: NDCC 23-25-04.1

33-15-14-05. Common provisions applicable to both permit to construct and permit to operate.

1. **Exemptions.** A permit to construct and a permit to operate are not required for the following stationary sources:

   a. Maintenance, structural changes, or minor repair of process equipment, fuel burning equipment, control equipment, or incinerators which do not change capacity of such process equipment, fuel burning equipment, control equipment, or incinerators and which do not involve any change in the quality, nature, or quantity of emissions therefrom.

   b. Fossil fuel burning equipment, other than smokehouse generators, which meet all of the following criteria:

      (1) The aggregate heat input per unit does not exceed ten million British thermal units per hour.

      (2) The total aggregate heat input from all equipment does not exceed ten million British thermal units per hour.

      (3) The actual emissions, as defined in chapter 33-15-15 from all equipment do not exceed twenty-five tons [22.67 metric tons] per year of any air contaminant.

   c. Any single internal combustion engine with less than five hundred brake horsepower, or multiple engines with a combined brake horsepower rating less than five hundred brake horsepower.

d. Bench scale laboratory equipment used exclusively for chemical or physical analysis or experimentation.

e. Portable brazing, soldering, or welding equipment.

f. The following equipment:

   (1) Comfort air conditioners or comfort ventilating systems which are not designed and not intended to be used to remove emissions generated by or released from specific units or equipment.

   (2) Water cooling towers and water cooling ponds unless used for evaporative cooling of process water, or for evaporative cooling of water from barometric jets or barometric condensers or used in conjunction with an installation requiring a permit.

   (3) Equipment used exclusively for steam cleaning.

   (4) Grain, metal, plastic, or mineral extrusion presses.

   (5) Porcelain enameling furnaces or porcelain enameling drying ovens.

   (6) Unheated solvent dispensing containers or unheated solvent rinsing containers of sixty gallons [227.12 liters] capacity or less.

   (7) Equipment used for hydraulic or hydrostatic testing.

g. The following equipment or any exhaust system or collector serving exclusively such equipment:

   (1) Blast cleaning equipment using a suspension of abrasive in water.

   (2) Bakery ovens where the products are edible and intended for human consumption.

   (3) Kilns for firing ceramic ware, heated exclusively by gaseous fuels, singly or in combinations, and electricity.

   (4) Confection cookers where the products are edible and intended for human consumption.

   (5) Drop hammers or hydraulic presses for forging or metal working.

(6) Die casting machines.

(7) Photographic process equipment through which an image is reproduced upon material through the use of sensitized radiant energy.

(8) Equipment for drilling, carving, cutting, routing, turning, sawing, planing, spindle sanding, or disc sanding of wood or wood products, which is located within a facility that does not vent to the outside air.

(9) Equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions.

(10) Equipment for washing or drying products fabricated from metal or glass; provided, that no volatile organic materials are used in the process and that no oil or solid fuel is burned.

(11) Laundry dryers, extractors, or tumblers for fabrics cleaned with only water solutions of bleach or detergents.

(12) Containers, reservoirs, or tanks used exclusively for electrolytic plating with, or electrolytic polishing of, or electrolytic stripping of the following metals: brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc, and precious metals.

h. Natural draft hoods or natural draft ventilators.

i. Containers, reservoirs, or tanks used exclusively for:

(1) Dipping operations for coating objects with oils, waxes, or greases, where no organic solvents are used.

(2) Dipping operations for applying coatings of natural or synthetic resins which contain no organic solvents.

(3) Storage of butane, propane, or liquefied petroleum or natural gas.

(4) Storage of lubricating oils.

(5) Storage of petroleum liquids except those containers, reservoirs, or tanks subject to the requirements of chapter 33-15-12.

j. Gaseous fuel-fired or electrically heated furnaces for heat treating glass or metals, the use of which does not involve molten materials.

k. Crucible furnaces, pot furnaces, or induction furnaces, with a capacity of one thousand pounds [453.59 kilograms] or less each, unless otherwise noted, in which no sweating or distilling is conducted, nor any fluxing conducted utilizing chloride, fluoride, or ammonium compounds, and from which only the following metals are poured or in which only the following metals are held in a molten state:

    (1) Aluminum or any alloy containing over fifty percent aluminum; provided, that no gaseous chlorine compounds, chlorine, aluminum chloride, or aluminum fluoride are used.

    (2) Magnesium or any alloy containing over fifty percent magnesium.

    (3) Lead or any alloy containing over fifty percent lead, in a furnace with a capacity of five hundred fifty pounds [249.48 kilograms] or less.

    (4) Tin or any alloy containing over fifty percent tin.

    (5) Zinc or any alloy containing over fifty percent zinc.

    (6) Copper.

    (7) Precious metals.

l. Open burning activities within the scope of section 33-15-04-02.

m. Flares used to indicate some danger to the public.

n. Other sources of minor significance as determined by the department.

2. Performance and emission testing.

    a. Emission tests or performance tests or both shall be conducted by the owner or operator of a facility and data reduced in accordance with the applicable procedure, limitations, standards, and test methods established by this article. Such tests must be conducted under the owner's or operator's permit to construct or operate, and such permit is subject to the faithful completion of the test in accordance with this article.

    b. All dates and periods of trial operation for the purpose of performance or emission testing pursuant to a permit to construct, and all dates of performance or emission testing pursuant to a permit to operate, must be approved in advance by the department. Trial operation shall cease if the department determines, on the basis of the test results, that continued operation will result in the violation of this article. Upon completion of any test conducted under a permit to construct, the department may order the cessation of the operation of the tested equipment or facility until such time as a permit to operate has been issued by the department.

c. Upon review of the performance data resulting from any test, the department may require the installation of such additional control equipment as will bring the facility into compliance with this article.

d. Nothing in this article may be construed to prevent the department from conducting any test upon its own initiative, or from requiring the owner or operator to conduct any test at such time as the department may determine.

3. **Responsibility to comply.**

a. Possession of a permit to construct or a permit to operate does not relieve any person of the responsibility to comply with this article.

b. The exemption of any stationary source from the requirements of a permit to construct or a permit to operate by reason of inclusion in subsection 1 does not relieve the owner or operator of such source of the responsibility to comply with any other applicable portions of this article.

4. **Portable sources.** Sources which are designed to be portable and which are operated at temporary jobsites across the state may not be considered a new source by virtue of location changes. One application for a permit to operate any portable source may be filed in accordance with this chapter, and subsequent applications are not required for each temporary jobsite. The permit to operate issued by the department shall be conditioned by such specific requirements as the department deems appropriate to carry out the provisions of sections 33-15-01-07 and 33-15-01-15.

5. **Registration of exempted stationary sources.** The department may require that the owner or operator of any stationary source exempted under subsection 1 shall register the source with the department within such time limits and on such forms as the department may prescribe.

6. **Extensions of time.** The department may extend any of the time periods specified in subsections 4, 5, and 6 of section

33-15-14-02 and subsection 5 of section 33-15-14-03 upon notification of the applicant by the department.

7. **Amendment of permits.** The department may, when the public interest requires, modify any condition of a permit to operate or permit to construct. Modification shall be made only upon the department's own motion and the procedure shall, at a minimum, conform to any requirements of federal and state law. In the event that the modification would have a significant impact as defined in chapter 33-15-15 or be of concern to the public, the department will provide:

   a. Reasonable notice to the public, in the area to be affected, of the opportunity for comment on the proposed modification at a public hearing as well as written public comment.

   b. A minimum of a thirty-day period for written public comment with a public hearing during that thirty-day period.

   c. Consideration by the department of all comments received in its order for modification.

   The department may require the submission of such maps, plans, specifications, emission information, and compliance schedules as it deems necessary prior to the issuance of an order for modification. It is the intention of the department that this subsection shall apply only in those instances allowed by federal rules and regulations and only in those instances in which the granting of a variance pursuant to section 33-15-01-06 and enforcement of existing permit conditions are manifestly inappropriate.

History: Effective October 1, 1987; amended effective January 1, 1989 ; June 1, 1990.
General Authority: NDCC 28-32-02
Law Implemented: NDCC 23-25-04.1

CHAPTER 33-15-15
PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Section	
33-15-15-01	General Provisions
33-15-15-02	Reclassification

33-15-15-01. General provisions.

1. **Definitions.** For the purposes of this chapter:

   a. "Actual emissions" means the actual rate of emissions of a contaminant from an emissions unit, as determined in accordance with paragraphs 1 through 3.

      (1) In general, actual emissions as of a particular date must equal the average rate, in tons per year, at which the unit actually emitted the contaminant during a two-year period which precedes the particular date and which is representative of normal source operation. The department may allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions must be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

      (2) The department may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

      (3) For any emissions unit which has not begun normal operations on the particular date, actual emissions must equal the potential to emit of the unit on that date.

   b. "Allowable emissions" means the emission rate of a stationary source calculated using the maximum rated capacity of the source and the most stringent of the following:

      (1) Applicable standards of performance or emission limitations as set forth in this article.

(2) The emission rate specified as an enforceable permit condition.

c. "Baseline area" means any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107 (d)(1)(D) or (E) of the Federal Clean Air Act [Pub. L. 95-95], in which the major source or major modification establishing the minor source baseline date would construct or would have an air quality impact equal to or greater than one $\mu g/m^3$ (annual average) of the contaminant for which the minor source baseline date is established. North Dakota is divided into two intrastate areas under section 107 (d)(1)(D) or (E) of the Federal Clean Air Act [Pub. L. 95-95]: the Cass County portion of Region No. 130, the Metropolitan Fargo-Moorhead Interstate Air Quality Control Region; and Region No. 172, the North Dakota Intrastate Air Quality Control Region (the remaining fifty-two counties).

d. (1) "Baseline concentration" means that ambient concentration level which exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each contaminant for which a minor source baseline date is established and includes:

(a) The actual emissions representative of sources in existence ~~of~~ on the applicable minor source baseline date, except as provided in paragraph 2;

(b) The allowable emissions of major stationary sources which commenced construction before ~~January 6, 1975,~~ the major source baseline date but were not in operation by the applicable minor source baseline date.

(2) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increases:

(a) Actual emissions from any major stationary source on which construction commenced after ~~January 6, 1975~~ the major source baseline date; and

(b) Actual emissions increases and decreases at any stationary source occurring after the minor source baseline date.

~~e. (1) "Baseline date" means the earliest date after August 7, 1977, on which the first complete application under this chapter is submitted by a major stationary source or major modification subject to the requirements of this chapter.~~

e. (1) "Major source baseline date" means:

(a) In the case of particulate matter and sulfur dioxide, January 6, 1975; and

(b) In the case of nitrogen dioxide, February 8, 1988.

(2) "Minor source baseline date" means the earliest date after the trigger date on which a major stationary source or a major modification subject to requirements of this chapter submits a complete application under the relevant regulations. The trigger date is:

(a) In the case of particulate matter and sulfur dioxide, August 7, 1977; and

(b) In the case of nitrogen dioxide, February 8, 1988.

(~~2~~3) The baseline date is established for each contaminant for which increments or other equivalent measures have been established if:

(a) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under section 107 (d)(1)(D) or (E) of the Federal Clean Air Act [Pub. L. 95-95] for the contaminant on the date of its complete application under this chapter; and

(b) In the case of a major stationary source, the contaminant would be emitted in significant amounts or, in the case of a major modification, there would be a significant net emissions increase of the contaminant.

(~~3~~4) The department shall provide a list of baseline dates for each contaminant for each baseline area.

f. "Begin actual construction" means, in general, initiation of physical onsite construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operation, this term refers to those onsite activities, other than preparatory activities, which mark the initiation of the change.

g. "Best available control technology" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each contaminant subject to regulation under North Dakota Century Code chapter 23-25 which would be emitted from any proposed major stationary source or major modification which the department, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques including fuel cleaning or treatment or innovative fuel combustion techniques for control of such contaminant. In no event may application of "best available control technology" result in emissions of any contaminant which would exceed the emissions allowed by any applicable standards of performance under chapters 33-15-12 and 33-15-13. If the department determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emission standard infeasible, a design, equipment, work practice or operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard must, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results.

h. "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has obtained all necessary preconstruction permits and either has (1) begun, or caused to begin, a continuous program of actual onsite construction of the source, to be completed within a reasonable time; or (2) entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed within a reasonable time.

i. "Complete" means, in reference to an application for a permit, that the application contains all of the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the reviewing authority from requesting or accepting any additional information.

j. "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

k. "Emissions unit" means any part of a stationary source which emits or would have the potential to emit any air contaminant regulated under North Dakota Century Code chapter 23-25.

l. "Enforceable" means all limitations and conditions which are enforceable by the department pursuant to this article and any applicable requirements within the North Dakota state implementation plan.

m. "Facility, building, structure, or installation" means all of the air contaminant emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Air contaminant emitting activities shall be considered as part of the same industrial grouping if they belong to the same "major group" (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

n. "Federal land manager" means, with respect to any lands in the United States, the secretary of the department with authority over such lands.

o. "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

p. "High terrain" means any area having an elevation nine hundred feet [271.32 meters] or more above the base of the stack of a source.

q. "Indian governing body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

r. "Indian reservation" means any federally recognized reservation established by treaty, agreement, executive order, or Act of Congress.

s. "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or nonair quality environmental impacts.

t. "Low terrain" means any area other than high terrain.

u. "Major modification" means any physical change in, or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any air contaminant subject to regulation under North Dakota Century Code chapter 23-25.

  (1) Any net emissions increase that is significant for volatile organic compounds must be considered significant for ozone.

  (2) A physical change or change in the method of operation does not include:

    (a) Routine maintenance, repair, and replacement.

    (b) Use of an alternate fuel or raw material by reason of any order under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act.

    (c) Use of an alternate fuel or raw material by a stationary source which:

[1] The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any state enforceable permit condition which was established after January 6, 1975, pursuant to this chapter or under regulations approved pursuant to North Dakota Century Code chapter 23-25.

[2] The source is approved to use under any permit issued under regulations approved pursuant to North Dakota Century Code chapter 23-25.

(d) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any enforceable permit condition which was established after January 6, 1975, pursuant to this chapter under regulations approved pursuant to North Dakota Century Code chapter 23-25.

(e) Any change in ownership of a stationary source.

(f) Use of an alternative fuel by reason of an order or rule under section 125 of the Federal Clean Air Act [Pub. L. 95-95].

(g) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste.

v. "Major stationary source" means:

(1) Any of the following stationary sources of air contaminants which emit, or have the potential to emit, one hundred tons [90,718.17 kilograms] per year or more of any air contaminant regulated under North Dakota Century Code chapter 23-25: coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mills, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than two hundred fifty tons [226,796.19 kilograms] of refuse per day, hydrofluoric, sulfuric, and nitric acid

plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production facilities, chemical process plants, fossil-fuel boilers and fossil fuel-fired steam electric plants (or combinations thereof) of more than two hundred fifty million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding three hundred thousand barrels, taconite ore processing facilities, glass fiber processing plants, and charcoal production facilities.

(2) Notwithstanding the source sizes in paragraph 1, such term also includes any stationary source which emits, or has the potential to emit, two hundred fifty tons [226,796.19 kilograms] per year or more of any air contaminant regulated under North Dakota Century Code chapter 23-25 or as outlined in paragraph 3.

(3) Any physical change that would occur at a stationary source not otherwise qualifying under paragraph (1) as a major stationary source, if the changes would constitute a major stationary source by itself.

(4) A major source that is major for volatile organic compounds shall be considered major for ozone.

(5) The fugitive emissions of a stationary source may not be included in determining for any of the purposes of this subdivision whether it is a major stationary source unless the source belongs to one of the categories of stationary sources in paragraph 1 and any other stationary source category which as of August 7, 1980, is being regulated under section 111 or 112 of the Federal Clean Air Act.

w. "Necessary preconstruction permits" means those permits required under this article.

x. "Net emissions increase" means the amount by which the sum of the following exceeds zero:

(1) Any increase in actual emissions from a particular physical change or change in the

method of operation at a stationary source; and

(2) Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(a) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

[1] The date five years before construction on the particular change commences; and

[2] The date that the increase from the particular change occurs.

(b) An increase or decrease in actual emissions is creditable only if the department has not relied on it in issuing a permit for the source under this article, which permit is in effect when the increase in actual emissions from the particular change occurs.

(c) An increase or decrease in actual emissions of sulfur dioxide, ~~or~~ particulate matter, or nitrogen oxides which occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

(d) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(e) A decrease in actual emissions is creditable only to the extent that:

[1] The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

[2] It is enforceable at and after the time that actual construction on the particular change begins; and

[3] It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(f) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed one hundred eighty days.

y. "Potential to emit" means the maximum capacity of a stationary source to emit an air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, must be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

z. "Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. Secondary emissions must be specific, well-defined, quantifiable, and impact the same general areas as the major stationary source or major modification which causes the secondary emissions. Secondary emissions include emissions from any offsite support facility which would not otherwise be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source.

aa. "Significant" means:

(1) In reference to a net emissions increase or the potential of a source to emit any of the following air contaminants, a rate of emissions that would equal or exceed any of the following rates:

Air Contaminant and Emissions Rate

Carbon monoxide: 100 tons per year
Nitrogen oxides: 40 tons per year
Sulfur dioxide: 40 tons per year
Particulate matter: 25 tons per year of particulate matter emissions; 15 tons per year of PM_{10} emissions
Ozone: 40 tons per year of volatile organic compounds
Lead: 0.6 ton per year
Asbestos: 0.007 ton per year
Beryllium: 0.0004 ton per year
Mercury: 0.1 ton per year
Vinyl chloride: 1 ton per year
Fluorides: 3 tons per year
Sulfuric acid mist: 7 tons per year
Hydrogen sulfide (H_2S): 10 tons per year
Total reduced sulfur (including H_2S): 10 tons per year
Reduced sulfur compounds (including H_2S): 10 tons per year

(2) In reference to a net emissions increase or the potential of a source to emit an air contaminant subject to regulation under North Dakota Century Code chapter 23-25 that paragraph 1 does not list, any emissions rate.

(3) Notwithstanding paragraph 1, any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within ten kilometers [6.21 miles] of a class I area, and have an impact on such area equal to or greater than one $\mu g/m^3$ (24-hour average).

bb. "Stationary source" means any building, structure, facility, or installation which emits or may emit any air contaminant regulated under North Dakota Century Code chapter 23-25.

cc. "Total suspended particulate (TSP)" means particulate matter as measured by the method described in Appendix B of 40 CFR 50.

2. Significant deterioration of air quality - Area designation and deterioration increment.

a. The provisions of this chapter apply to those counties or other functionally equivalent areas that are designated as attainment or unclassifiable for any of the national ambient air quality standards.

b. For purposes of this chapter, areas designated as class I, II, or III shall be limited to the following increases in contaminant concentration over the baseline concentration:

Area Designations

Pollutant	Class I ($\mu g/m^3$)	Class II ($\mu g/m^3$)	Class III ($\mu g/m^3$)
Particulate matter:			
TSP, Annual geometric mean	5	19	37
TSP, 24-hour maximum	10	37	75
Sulfur dioxide:			
Annual arithmetic mean	2	15	40
24-hour maximum	5	91	182
3-hour maximum	25	512	700
Nitrogen dioxide:			
Annual arithmetic mean	2.5	25	50

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any receptor site.

Any conflict between an applicable increment and an applicable ambient air quality standard shall be resolved in favor of the more stringent limitation and the source shall be limited to such more stringent limitation.

c. All of the following areas which were in existence on August 7, 1977, are hereby designated class I areas and may not be redesignated:

(1) The Theodore Roosevelt National Park - north and south units in Billings and McKenzie Counties, and the Theodore Roosevelt Elkhorn Ranch Site in Billings County.

(2) The Lostwood National Wilderness Area in Burke County.

All other areas of the state are hereby designated class II areas.

d. The following areas may be redesignated only as class I or II:

   (1) An area which as of August 7, 1977, exceeds ten thousand acres [4,046.86 hectares] in size and is a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore, or seashore.

   (2) A national park or national wilderness area established after August 7, 1977, which exceeds ten thousand acres [4,046.86 hectares] in size.

e. Exclusions from increment consumption:

   (1) The following concentrations shall be excluded in determining compliance with a maximum allowable increase in contaminant concentration:

      (a) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both, by reason of an order in effect under sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such order;

      (b) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

      (c) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified sources;

      (d) The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and

(e) Concentrations attributable to the temporary increase in emissions of sulfur dioxide, ~~or~~ particulate matter, or nitrogen oxides from stationary sources which increases have been approved in advance by the department under an approved state implementation plan revision.

(2) No exclusion of such concentrations shall appl~~ies~~y more than five years after the effective date of the order to which subparagraph a or b of paragraph 1 refers, whichever is applicable. If both such order and plan are applicable, no such exclusion applies more than five years after the later of such effective dates.

(3) For purposes of excluding concentrations pursuant to subparagraph e of paragraph 1:

(a) The time over which the temporary emissions increase of sulfur dioxide, ~~or~~ particulate matter, or nitrogen oxides would occur must be specified. Such time~~s~~ may not exceed two years in duration unless a longer time is approved by the administrator of the United States environmental protection agency.

(b) The time period for excluding certain contributions in accordance with subparagraph a is not renewable.

(c) No emissions increase from a stationary source may:

[1] Impact a class I area or an area where an applicable increment is known to be violated; or

[2] Cause or contribute to the violation of any ambient air quality standards.

(d) The emission levels from the stationary sources effected at the end of the time period specified in accordance with subparagraph a may not exceed those levels occurring from such sources before the temporary increases in emissions were approved.

f. The class I area increment limitations of the Theodore Roosevelt Elkhorn Ranch Site of the Theodore Roosevelt National Park shall apply ~~only~~ to sources or modifications for which complete applications ~~have not been~~ were filed ~~as of~~ after July 1, 1982. The impact of emissions from sources or modifications for which permits under this chapter have been issued or complete applications have already been filed will be counted against the increments after July 1, 1982.

g. Any applicant whose emissions will consume more than one-half of the available increment in another state may not be granted a permit in accordance with this chapter, unless approved by the department after consultation with the other state.

3. **Stack heights.** The stack height for any source subject to this chapter must meet the requirements of chapter 33-15-18.

4. **Review of new major stationary sources and major modifications.**

   a. Applicability. The requirements of this chapter shall apply to any major new stationary source or modification which:

      (1) Ha~~s~~d not been issued a permit to construct or modify prior to March 1, 1978;

      (2) Ha~~s~~d not commenced construction prior to March 19, 1979; or

      (3) Has discontinued construction for a period of eighteen months or more and has not completed construction within a reasonable time.

   Review of these sources or modifications must be conducted in conjunction with the issuance of permits to construct pursuant to section 33-15-14-02.

   b. Permits - general.

      (1) No source subject to this chapter may be constructed in any area unless:

         (a) A permit has been issued for such proposed source in accordance with this chapter setting forth emission limitations or equipment standards for such source which conform to the requirements of this chapter and any conditions necessary to ensure that the proposed source will meet such limits or standards;

(b) The requirements of subdivision c through k, as applicable, have been met; and

(c) The proposed permit has been subject to a review in accordance with this chapter, the required analysis has been conducted in accordance with the requirements of this chapter, and the procedures for public participation as defined in subsection 5 have been followed.

(2) Provided that all necessary requirements of this article have been met, permits will be issued on a first-come, first-served basis as determined by the completion date of the applications.

c. Control technology review.

(1) A major stationary source or major modification shall meet all applicable emission limitations under the state implementation plan and all applicable emission standards and standards of performance of this article.

(2) A new major stationary source shall apply best available control technology for each air contaminant subject to regulation under North Dakota Century Code chapter 23-25 that it would have the potential to emit in significant amounts.

(3) A major modification shall apply best available control technology for each air contaminant subject to regulation under North Dakota Century Code chapter 23-25 for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the air contaminant would occur as a result of a physical change or change in the method of operation in the unit.

(4) For phased construction projects, the determination of best available control technology must be reviewed and modified as appropriate at the latest reasonable time which occurs no later than eighteen months

prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

d. Exemptions from impact analysis.

(1) The requirements of subdivisions e, g, and i do not apply to a major stationary source or major modification with respect to a particular air contaminant, if the allowable emissions from the source, or the net emissions increase of that contaminant from the modification:

(a) Would impact no class I area and no area where an applicable increment is known to be violated; and

(b) Would be temporary.

(2) The requirements of subdivisions e, g, and i as they relate to any maximum allowable increase for a class II area do not apply to a major modification at a stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each air contaminant regulated under North Dakota Century Code chapter 23-25 from the modification after the application of best available control technology would be less than fifty tons [45,359.24 kilograms] per year.

(3) The department may exempt a stationary source or modification from the requirements of subdivision g with respect to monitoring for a particular air contaminant if:

(a) The emissions increase of the air contaminant from the new source or the net emissions increase of the air contaminant from the modification would cause, in any area, air quality impacts less than the following amounts:

Carbon monoxide - 575 µg/m^3, 8-hour average
Nitrogen dioxide - 14 µg/m^3, annual average
Particulate matter - 10 µg/m^3, TSP,

24-hour average; 10 $\mu g/m^3$, PM_{10}, 24-hour average
Sulfur dioxide - 13 $\mu g/m^3$, 24-hour average
Ozone - No de minimus level
Lead - 0.1 $\mu g/m^3$, 3-month average
Mercury - 0.25 $\mu g/m^3$, 24-hour average
Beryllium - 0.001 $\mu g/m^3$, 24-hour average
Fluorides - 0.25 $\mu g/m^3$, 24-hour average
Vinyl chloride - 15 $\mu g/m^3$, 24-hour average
Total reduced sulfur - 10 $\mu g/m^3$, 1-hour average
Hydrogen sulfide - 0.2 $\mu g/m^3$, 1-hour average
Reduced sulfur compounds - 10 $\mu g/m^3$, 1-hour average

(b) The concentrations of the air contaminant in the area that the source or modification would effect are less than the concentrations listed in subparagraph a or the air contaminant is not listed in subparagraph a.

(4) The requirements for best available control technology in subdivision c and the requirements for air quality analyses in paragraph 1 of subdivision g do not apply to a particular stationary source or modification that was subject to this chapter if the owner or operator of the source or modification submitted an application for a permit before May 7, 1981, and the department subsequently determines the application as submitted before that date was complete. Instead, the requirements of subdivisions c and h as in effect prior to May 7, 1981, apply to any such source or modification.

(5) The requirements for air quality monitoring in subparagraphs b, c, and d of paragraph 1 of subdivision g do not apply to:

(a) A particular source or modification that was subject to this chapter as in effect prior to May 7, 1981, if the owner or operator of the source or modification submit~~s~~ted an application for a permit under this chapter on or before June 8, 1981, and the department subsequently determine~~s~~d that the application as submitted before that date was complete with respect to the requirements of this chapter other than those in subparagraphs b, c, and d of paragraph 1 of subdivision g and with respect to the requirements for such analyses in paragraph 2 of subdivision g as in effect prior to May 7, 1981. Instead, the requirements of this chapter prior to May 7, 1981, shall apply to any source or modification.

(b) A particular source or modification that was not subject to this chapter as in effect prior to May 7, 1981, if the owner or operator of the source or modification submit~~s~~ted an application for a permit under this chapter on or before June 8, 1981, and the department subsequently determine~~s~~d that the application as submitted before that date was complete, except with respect to the requirements in subparagraphs b, c, and d of paragraph 1 of subdivision g.

(6) The requirements of subdivisions c, e, f, g, h, i, and j and subsections 5 and 6 in their entirety do not apply to a particular major stationary source or major modification, if:

(a) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the stationary sources of air contaminants listed in subdivision u of subsection 1 and any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Federal Clean Air Act [Pub. L. 95-95].

(b) The source is a portable stationary source which has previously received a permit under this chapter and:

[1] The owner or operator proposes to relocate the source and emissions of the source at the new location would be temporary.

[2] The emissions from the source would not exceed its allowable emissions.

[3] The emissions from the source would impact no class I area and no area where an applicable increment is known to be violated.

[4] Reasonable notice is given to the department prior to the relocation identifying the proposed new location and the probable duration of operation at the new location. Such notice shall be given to the department not less than ten days in advance of the proposed relocation unless a different time duration is previously approved by the department.

(c) With respect to a particular air contaminant, the owner or operator demonstrates that the source or modification is located in an area designated as nonattainment by the administrator of the United States environmental protection agency, as to that air contaminant, under this article.

(d) The source or modification would be a nonprofit health or nonprofit educational institution, or a major modification would occur at such an institution, and the governor requests that it be exempt from such requirements.

e. Source impact analysis. The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions) from any other sources, will not cause or contribute to air pollution in violation of:

(1) Any ambient air quality standard in any area; or

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

f. Air quality models.

(1) All estimates of ambient concentrations required under this section must be based on the applicable air quality models, data bases, and other requirements specified in the

"Guidelines on Air Quality Models" (United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711) ~~and~~ as supplemented by the "North Dakota Guideline for Air Quality Modeling Analyses" (North Dakota state department of health and consolidated laboratories, division of environmental engineering). These documents are incorporated by reference.

(2) Where an air quality impact model specified in the documents incorporated by reference in paragraph 1 is inappropriate, the model may be modified or another model substituted provided:

(a) Any modified or nonguideline model must be subjected to notice and opportunity for public comment under subsection 5.

(b) The applicant must provide to the department adequate information to evaluate the applicability of the modified or nonguideline model. Such information must include, but not be limited to, methods like those outlined in the "Workbook for the Comparison of Air Quality Models" (United States environmental protection agency, office of air quality planning and standards, Research Triangle Park, North Carolina 27711).

(c) Written approval from the department must be obtained for any modification or substitution prior to an application being designated complete by the department.

(d) Written approval from the United States environmental protection agency must be obtained for any modification or substitution prior to the granting of a permit under this chapter.

g. Air quality analysis.

(1) Preapplication analysis.

(a) Any application for a permit under this section must contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following air contaminants:

[1] For the source, each air contaminant that it would have the potential to emit in a significant amount;

[2] For the modification, each air contaminant for which it would result in a significant net emissions increase.

(b) With respect to any such air contaminant for which no ambient air quality standard exists, the analysis must contain such air quality monitoring data as the department determines is necessary to assess ambient air quality for that air contaminant in any area that the emissions of that air contaminant would affect.

(c) With respect to any such air contaminant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis must contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that air contaminant would cause or contribute to a violation of the standard or any maximum allowable increase.

(d) In general, the continuous air quality monitoring data that ~~is~~ are required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application except that if the department determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that ~~is~~ are required shall have been gathered over at least that shorter period.

(e) For any application which becomes complete, except as to the requirements of subparagraphs c and d, between June 8, 1981, and February 9, 1982, the data that subparagraph c requires shall have been gathered over at least the period from February 9, 1981, to the date the application becomes otherwise complete, except that:

[1] If the source or modification would have been major for that air contaminant under this chapter as in effect prior to May 7, 1981, any monitoring data shall have been gathered over at least the period required by those rules.

[2] If the department determines that a complete and adequate analysis can be accomplished with monitoring data over a shorter period (not to be less than four months), the data that subparagraph c requires shall have been gathered over at least that shorter period.

[3] If the monitoring data would relate exclusively to ozone and would not have been required under this chapter as in effect prior to May 7, 1981, the department may waive the otherwise applicable requirements of this subparagraph to the extent that the applicant shows that the monitoring data would be unrepresentative of air quality over a full year.

(f) The owner or operator of a proposed stationary source or modification of volatile organic compounds who satisfies all conditions of 40 CFR, part 51, appendix S, section IV may provide postapproved monitoring data for ozone in lieu of providing preconstruction data as required under paragraph 1.

(2) Postconstruction monitoring. The owner or operator of a major stationary source or major modification shall, after construction of the stationary source or modification, conduct such ambient monitoring as the department determines is necessary to determine the effect emissions from the stationary source or modification may have, or are having, on air quality in any area.

(3) Operations of monitoring stations. The owner or operator of a major stationary source or major modification shall meet the requirements of 40 CFR, part 58, appendix B during the operation of monitoring stations for purposes of satisfying subdivision g.

h. Source information. The owner or operator of a proposed major stationary source or major modification shall submit all information necessary to perform any analysis to make any determination required under this article. Such information must include:

(1) A description of the nature, location, design capacity, and typical operating schedule of the proposed source or modification, including specifications and drawings showing the design and plant layout.

(2) A detailed schedule for construction of the source or modification.

(3) A detailed description as to what system of continuous emission reduction is planned by the source or modification, emission estimates, and any other information necessary to determine that best available control technology as specified in the "North Dakota Guidelines for Determining Best Available Control Technology" (North Dakota state department of health and consolidated laboratories, division of environmental engineering). This document is incorporated by reference.

(4) The air quality impact of the source or modification, including meteorological and topographical data necessary to estimate such impact.

(5) Information on the air quality impacts and the nature and extent of general commercial, residential, industrial, and other growth which has occurred since the baseline date in the area the source or modification would affect.

i. Additional impact analyses.

(1) The owner or operator shall provide an analysis of the impairment to visibility, (in accordance with chapter 33-15-19) soils and vegetation, and wildlife that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. The owner or operator need not provide an analysis on vegetation or wildlife having no significant commercial or

recreational value except for endangered and threatened species as identified by the United States fish and wildlife service.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of the general commercial, residential, industrial, and other growth associated with the source or modification.

j. Sources impacting federal class I areas - additional requirements.

(1) Notice to the environmental protection agency. The department shall transmit to the administrator of the United States environmental protection agency region VIII regional administrator a copy of each permit application relating to a major stationary source or major modification received by the department and provide notice to the administrator of every action related to the consideration of such permit.

(2) Notice to federal land managers. The department shall provide written notice of any permit application for a proposed major stationary source or major modification, the emissions from which may affect a class I area, to the federal land manager and the federal official charged with direct responsibility for management of any lands within any such area. Such notification must include a copy of all information relevant to the permit application and must be given within thirty days of receipt and at least sixty days prior to any public hearing on the application for a permit to construct. Such notification must include an analysis of the proposed source's anticipated impacts on visibility in the federal class I area. The department shall also provide the federal land manager and such federal officials with a copy of the preliminary determination required under subsection 5 and shall make available to them any materials used in making that determination, promptly after the department makes such determination. Finally, the department shall also notify all affected federal land managers within thirty days of receipt of any advance notification of any such permit application.

(3) Denial - impact on air quality-related values. A federal land manager may present to the department, after reviewing the department's preliminary determination required under subsection 5, a demonstration that the emission from an applicable source will have an adverse impact on the air quality-related values (including visibility) of federal mandatory class I lands, notwithstanding that the change in air quality resulting from emissions from such source or modification will not cause or contribute to concentrations which exceed the maximum allowable increases for a class I area. If the department concurs with such demonstration, the permit may not be issued.

(4) Class I variances.

(a) The owner or operator of a proposed source may demonstrate to the federal land manager that the emissions from such source or modification will have no adverse impact on the air quality-related values of any such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification will cause or contribute to concentrations which exceed the maximum allowable increases for a class I area. If the federal land manager concurs with such demonstration ~~and the manager concurs with such demonstration~~ and the manager so certifies to the department, the department may issue the permit pursuant to the requirements of subparagraph b; provided, that the applicable requirements of this chapter are otherwise met.

(b) In the case of a permit issued pursuant to subparagraph a, such source or modification shall comply with such emission limitations under such permit as may be necessary to assure that emissions of sulfur dioxide, ~~and~~ particulate matter, and nitrogen oxides will not exceed the following maximum allowable increases over the minor source baseline concentration for such contaminants:

	Maximum allowable increase (micrograms per cubic meter)
Particulate matter:	
TSP, Annual geometric mean	19
TSP, 24-hour maximum	37
Sulfur dioxide:	
Annual arithmetic mean	15
24-hour maximum	91
3-hour maximum	325
Nitrogen dioxide:	
Annual arithmetic mean	25

(5) Sulfur dioxide variance by governor with federal land manager's concurrence. The owner or operator of a proposed source or modification which cannot be approved under paragraph 4 may demonstrate to the governor, that the source or modification cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for periods of twenty-four hours or less applicable to any class I area and, in the case of federal mandatory class I areas, that a variance under this clause would not adversely affect the air quality-related values of the area (including visibility). The governor, after consideration of the federal land manager's recommendation (if any) and subject to the federal land manager's concurrence, may, after notice and public hearing, grant a variance from such maximum allowable increase. If such variance is granted, the department shall issue a permit to such source or modification pursuant to the requirements of paragraph 7; provided, that the applicable requirements of this chapter are otherwise met.

(6) Variance by the governor with the president's concurrence. In any case where the governor recommends a variance under this subdivision in which the federal land manager does not concur, the recommendations of the governor and the federal land manager must be transmitted to the president. The president may approve the governor's recommendation if the president finds that such variance is in the national interest. If such a variance is approved, the department shall issue a permit pursuant to the requirements of paragraph 7; provided, that the applicable requirements of this chapter are otherwise met.

(7) Emission limitations for presidential or gubernatorial variances. In the case of a permit issued pursuant to paragraph 5 or 6, the source or modification shall comply with emission limitations under such permit as may be necessary to assure that emissions of sulfur dioxide from such source or modification will not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which exceed the following maximum allowable increases over the baseline concentration and to assure that such emissions will not cause or otherwise contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of exposure of twenty-four hours or less for more than eighteen days, not necessarily consecutive, during any annual period:

Maximum allowable increase

(micrograms per cubic meter)

Period of exposure	Low Terrain areas	High Terrain areas
24-hour maximum	36	62
3-hour maximum	130	221

k. Proposed redesignations. Where an owner or operator applies for permission to construct pursuant to this chapter and the proposed source or modification would impact on an area which has previously been proposed for redesignation to a more stringent class by the department, an Indian governing body, or another state (or the state or Indian governing body has announced such consideration), approval may not be granted until the proposed redesignation has been acted upon. However, approval must be granted if, in the department's judgment, the proposed source would not violate the increments that would be applicable if the redesignation is approved. The department shall withhold approval under this subdivision only so long as another state or Indian governing body is actively and expeditiously proceeding toward redesignation.

Where an owner or operator has applied for permission to construct pursuant to this chapter and whose application has been deemed complete by the department prior to the public announcement of a proposed redesignation of an area to a more stringent class and where such facility would impact on the area proposed for redesignation, the application shall be processed considering the classification of the area which existed at the time the application was deemed complete.

5. **Public participation.**

   a. Within thirty days after receipt of an application to construct a source or modification subject to this chapter, or any addition to such application, the department shall advise the applicant as to the completeness of the application or of any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application, for the purpose of this chapter, shall be the date on which all required information to form a complete application is received by the department.

   b. Within one year after receipt of a completed application, the department shall:

      (1) Make a preliminary determination whether the source should be approved, approved with conditions, or disapproved pursuant to the requirements of this chapter.

      (2) Make available in at least one location in each region in which the proposed source or modification would be constructed, a copy of all materials submitted by the applicant, a copy of the department's preliminary determination, and a copy or summary of other materials, if any, considered by the department in making a preliminary determination.

      (3) Notify the public, by prominent advertisement in newspapers of general circulation in each region in which the proposed source or modification would be constructed, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, and the opportunity for comment at a public hearing as well as written public comment on the information submitted by the owner or

operator and the department's preliminary determination on the approvability of the source.

(4) Send a copy of the notice required in paragraph 3 to the applicant, the United States environmental protection agency administrator, and to officials and agencies having cognizance over the locations where the source or modification will be situated as follows: local air pollution control agencies, the chief executive of the city and county where the source or modification would be located; any comprehensive regional land use planning agency; and any state, federal land manager, or Indian governing body whose lands may be significantly affected by emissions from the source or modification.

(5) Hold a public hearing whenever, on the basis of written requests, a significant degree of public interest exists or at its discretion when issues involved in the permit decision need to be clarified. A public hearing would be held during the public comment period for interested persons (including representatives of the United States environmental protection agency administrator) to appear and submit written or oral comments on the air quality impact of the source or modification, alternatives to the source or modification, the control technology required and other appropriate considerations.

(6) Consider all public comments submitted in writing within a time specified in the public notice required in paragraph 3 and all comments received at any public hearing conducted pursuant to paragraph 5 in making its final decision on the approvability of the application. No later than ten days after the close of the public comment period, the applicant may submit a written response to any comments submitted by the public. The department shall consider the applicant's response in making its final decision. All comments must be made available for public inspection in the same locations where the department made available preconstruction information relating to the source or modification.

(7) Make a final determination whether the source should be approved, approved with conditions,

or disapproved pursuant to the requirements of this chapter.

(8) Notify the applicant in writing of the department's final determination. The notification must be made available for public inspection in the same locations where the department made available preconstruction information and public comments relating to the source or modification.

6. **Source obligation.**

a. Any owner or operator who constructs or operates a stationary source or modification not in accordance with the application, submitted pursuant to subsection 4 or with the terms of any permit to construct; or any owner or operator of a stationary source or modification subject to this chapter who commences construction after the effective date of this chapter without applying for and receiving a permit to construct hereunder, shall be subject to enforcement action under North Dakota Century Code section 23-25-10.

b. A permit to construct shall become invalid if construction is not commenced within eighteen months after receipt of such permit, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The department may extend the eighteen-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within eighteen months of the projected and approved commencement date. In cases of major construction projects involving long lead times and substantial financial commitments, the department may provide by a condition to the permit a time period greater than eighteen months when such time extension is supported by sufficient documentation by the applicant.

c. A permit to construct does not relieve any owner or operator of the responsibility to comply fully with the applicable provisions of the state implementation plan and any other requirements under local, state, or federal law.

d. At such time that a particular source or modification becomes a major stationary source or modification solely by virtue of a relaxation in any enforceable limit which was established after May 7, 1980, on the capacity of the source or modification otherwise to emit an air contaminant, such as a restriction on hours of operation, then the requirements of subdivisions c, e, f, g, h, i, and j and the requirements of subsections 5, 6, and 7 shall apply to the source or modification as though construction had not yet commenced on the source or modification.

7. **Innovative control technology.**

   a. An owner or operator of a proposed major stationary source or major modification may request the department in writing to approve a system of innovative control technology.

   b. The department shall, with the consent of the governors of all affected states, determine that the source or modification may employ a system of innovative control technology, if:

      (1) The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function.

      (2) The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under paragraph 2 of subdivision c of subsection 4 by a date specified by the department. Such date may not be later than four years from the time of startup or seven years from permit issuance.

      (3) The source or modification would meet the requirements of subdivisions c and e of subsection 4 based on the emissions rate that the stationary source employing the system of innovative control technology would be required to meet on the date specified by the department.

      (4) The source or modification would not before the date specified by the department:

         (a) Cause or contribute to a violation of an applicable ambient air quality standard; or

         (b) Impact any class I area; or

(c) Impact any area where an applicable increment is known to be violated.

(5) All other applicable requirements including those for public participation have been met.

c. The department shall withdraw any approval to employ a system of innovative control technology made under this section, if:

(1) The proposed system fails by the specified date to achieve the required continuous emissions reduction rate;

(2) The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or

(3) The department decides at any time that the proposed system is unlikely to achieve the required level of control or to protect the public health, welfare, or safety.

d. If a source or modification fails to meet the required level of continuous emission reduction within the specified time period or the approval is withdrawn in accordance with subdivision c, the department may allow the source or modification up to an additional three years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

History: Amended effective July 1, 1982; October 1, 1987; January 1, 1989 ; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-15-02. Reclassification.

1. **Reclassification of areas.** All areas (except as otherwise provided under subdivisions c and d of subsection 2 of section 33-15-15-01) must be designated either class I, class II, or class III. Any designation other than class II is subject to the redesignation procedures of this section. Redesignation (except as otherwise precluded by subdivision c or d of subsection 2 of section 33-15-15-01) is subject to approval by the administrator of the United States environmental protection agency.

a. Reclassification by petition.

(1) Filing of petition. After twenty percent of the qualified electors in any county, as determined by the vote cast for the office of governor at the last preceding gubernatorial election, shall petition the department to reclassify any area within such county to class I, class II, or class III, the department shall hold a hearing and take such other action as specified in subsection 3. The department shall reclassify the area proposed in the petition for reclassification only if such reclassification is substantially supported by the hearing record.

(2) Contents of petition. The petition for petitioning the department to reclassify any area to either class I, class II, or class III as specified in subdivision b of subsection 2 of section 33-15-15-01 must contain a legal description of the area which the petition is to affect; an explanation of the meaning and purpose of the petition and reclassification; a statement to the effect that those persons signing the petition desire the described area to be reclassified to either class I, class II, or class III and such statement must specify which class; a list of those persons or person circulating such petition, which persons must be designated "Committee of Petitioners"; an affidavit to be attached to each petition and sworn to under oath before a notary public by the person circulating each petition attesting to the fact that the person circulated such petition and that each of the signatures to such petition is the genuine signature of the person whose name it purports to be, and that each such person is a qualified elector in the county in which the petition was circulated; all petitions' signatures must be numbered and dated by month, day, and year, and the name must be written with residence address and post-office address including the county of residence followed by state of North Dakota.

b. Reclassification upon department's own motion. At such time as the department may determine, it may hold a public hearing and take such other action as specified in subsection 2 in order to reclassify any area of this state to class I, class II, or class III. The department shall reclassify the area proposed for reclassification only if such reclassification is substantially supported by the hearing record.

2. **Procedures for reclassification.**

a. The department may reclassify any area of this state, including any federally owned lands, but excluding lands within the exterior boundaries of any Indian reservations, to either class I or class II pursuant to subdivisions a and b of subsection 1, provided that:

(1) At least one public hearing is held in or near the area affected and this public hearing is held in accordance with the procedures established in subsection 3.

(2) Other states, Indian governing bodies, and federal land managers whose lands may be affected by the proposed redesignation are notified at least thirty days prior to the public hearing.

(3) A discussion of the reasons for the proposed redesignation including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation is prepared and made available for public inspection at least thirty days prior to the hearing and the notice announcing the hearing contains appropriate notification of the availability of such discussion.

(4) Prior to the issuance of notice respecting the redesignation of any area that includes any federal lands, the state shall provide written notice to the appropriate federal land manager and afford adequate opportunity (but not in excess of sixty days) to confer with the state respecting the redesignation and to submit written comments and recommendations with respect to such redesignation. In redesignating any area with respect to which any federal land manager has submitted written comments and recommendations, the state shall publish a list of any inconsistency between such redesignation and such comments and recommendations and an explanation of such inconsistency (together with the reasons for making such redesignation against the recommendation of the federal land manager).

(5) The proposed redesignation is based on the record of the state's hearing, which must

reflect the basis for the proposed redesignation, including consideration of:

(a) Growth anticipated in the area.

(b) The social, environmental, health, energy, and economic effects of such redesignation upon the area being proposed for redesignation and upon other areas and states.

(c) Any impacts of such proposed redesignation upon regional or national interests. Anticipated growth shall include growth resulting both directly and indirectly from proposed development.

(6) The redesignation is proposed after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.

b. The department may reclassify any area of this state, including any federally owned lands but excluding lands within the exterior boundaries of any Indian reservations, other than an area referred to in subdivision e of subsection 2 of section 33-15-15-01 or an area established as class I under subdivision d of subsection 2 of section 33-15-15-01 to class III if:

(1) Such redesignation would meet the requirements of subdivision a.

(2) Such redesignation has been specifically approved by the governor of the state, after consultation with the appropriate committees of the legislative assembly if it is in session or with the leadership of the legislative assembly if it is not in session, and if general purpose units of local government representing a majority of the residents of the area so redesignated enact legislation or pass resolutions concurring the state's redesignation.

(3) Such redesignation will not cause, or contribute to, a concentration of any air contaminant which would exceed any maximum allowable increase permitted under the classification of any other area, or any applicable ambient air quality standard.

(4) Prior to any public hearing on redesignation of any area, there must be available, insofar as is practicable for public inspection, any specific plans for any new major stationary source or major modification which may be permitted to be constructed and operated only if the area in question is redesignated as class III.

3. **Reclassification hearings.**

a. Any hearing required by subsection 2 shall be held only after reasonable notice, which shall be considered to include, at least thirty days prior to the date of such hearing:

(1) Notice given to the public by prominent advertisement in the region affected announcing the date, time, and place of such hearing.

(2) Availability of each proposed plan or revision for public inspection in at least one location in each region to which it will apply, and the availability of each compliance schedule for public inspection in at least one location in the region in which the affected source is located.

(3) Notification to the administrator of the United States environmental protection agency (through the appropriate regional office).

(4) Notification to each local air pollution control agency in each region to which the plan, schedule, or revision will apply.

(5) In the case of an interstate region, notification to any other states included, in whole or in part, in the region.

(6) Notification to any states, Indian governing bodies, and federal land managers whose lands may be affected by the proposed redesignation.

b. The department shall prepare and retain for inspection a record of each hearing. The record must contain, as a minimum, a list of witnesses together with the text of each presentation.

c. Any hearing held pursuant to the provisions of this subsection must be held only for the purpose of considering such reclassification as has been noticed under the provisions of subsection 2, and consideration of reclassification to other classes not so noticed shall not be allowed.

d. Any hearing held pursuant to these provisions may be continued for such purposes and for such periods of time as the department may determine.

4. Time limitation. Notwithstanding any other regulation herein, the department shall rule upon any proposed reclassification within eighteen months of the official public notification of such proposed redesignation by the department.

History: Amended effective July 1, 1982; October 1, 1987; January 1, 1989.
General Authority: NDCC 28-32-02
Law Implemented: NDCC 23-25-03

CHAPTER 33-15-16
RESTRICTION OF ODOROUS AIR CONTAMINANTS

Section

33-15-16-01 General Provisions
33-15-16-02 Emissions of Odorous Substances Restricted
33-15-16-02.1 Emissions of Hydrogen Sulfide Restricted
33-15-16-03 Regulation Restriction [Repealed]
33-15-16-04 Method of Measurement
33-15-16-04.1 Regulation Restriction
33-15-16-05 Method of Selection and Training

33-15-16-01. General provisions.

1. ~~For the purpose of this chapter, an~~ An odor will be considered objectionable when a department certified inspector or at least thirty percent of a randomly selected group of persons, or an odor panel exposed to the odor would deem that odor objectionable if the odor were present in their place of residence.

2. ~~For the purpose of this chapter, an~~ An "odor concentration unit" means the maximum number of standard units of odor-free air diluting a standard unit of odorous air so that a department certified inspector or at least fifty percent of an odor panel can still detect ~~an~~ that objectionable odor in the diluted mixture.

3. ~~For the purpose of this chapter, a~~ A department certified inspector is any person designated by the department who has successfully completed ~~an~~ a department sponsored odor certification course and demonstrated the ability to distinguish various odorous samples and concentrations. In the case of hydrogen sulfide (H_2S) complaints, the inspector will be competent with the hydrogen sulfide (H_2S) detection equipment being used.

4. An odor panel, if used, must consist of a minimum of five persons who have successfully completed a department sponsored odor certification course and demonstrated the ability to distinguish various odorous samples and concentrations.

5. Odor emissions in excess of the limits stated in section 33-15-16-02 or 33-15-16-02.1, or both, will be addressed on a complaint basis.

History: Amended effective October 1, 1987; June 1, 1990.
General Authority: NDCC 23-25-03~~, 28-32-02~~
Law Implemented: NDCC 23-25-03

33-15-16-02. Emissions of odorous substances restricted. No person may discharge into the ambient air any objectionable odorous air contaminant which is in excess of two odor concentration units outside the property boundary.

General Authority: NDCC 23-25-03~~,~~ ~~28-32-02~~
Law Implemented: NDCC 23-25-03

33-15-16-02.1. Emissions of hydrogen sulfide restricted. No person may discharge into the ambient air hydrogen sulfide (H_2S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution under this section, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least fifteen minutes apart within a sixty-minute period and measured in accordance with section 33-15-16-04 constitute a violation.

History: Effective June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-16-03. Regulation restriction. ~~Compliance with the provisions of this chapter does not operate as a defense to any legal action which is based upon the theory of public or private nuisance.~~ Repealed effective June 1, 1990.

General Authority: ~~NDCC 23-25-03, 28-32-02~~
Law Implemented: ~~NDCC 23-25-03~~

33-15-16-04. Method of measurement. A Barnebey-Cheney Scentometer properly maintained, or other instrumental method~~,~~ as approved by the department ~~may~~, must be used in the determination of the intensity of an odor. In the case of hydrogen sulfide (H_2S) emissions, an ambient air analyzer designed for monitoring hydrogen sulfide (H_2S) must be the method used for determining the concentrations of emissions at the point of measurement, or other instrumental methods as approved by the department.

~~Procedures for obtaining ambient air samples containing odorous air contaminants and presenting such samples to the odor panel for tests shall be accomplished according to A.S.T.M. Method D-1391-57 or other method as approved by the department. An odor panel shall consist of a minimum of five persons.~~

History: Amended effective October 1, 1987; June 1, 1990.
General Authority: NDCC 23-25-03~~,~~ ~~28-32-02~~
Law Implemented: NDCC 23-25-03

33-15-16-04.1. Regulation restriction. Compliance with the provisions of this chapter does not operate as a defense to any legal action which is based upon the theory of public or private nuisance.

History: Effective June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-16-05. Method of selection and training. Selection and training of the department certified inspectors or odor panel members must follow the "North Dakota state department of health and consolidated laboratories odor certification guideline" (North Dakota state department of health and consolidated laboratories, division of environmental engineering).

History: Effective October 1, 1987; amended effective June 1, 1990.
General Authority: NDCC 23-25-03~~, 28-32-02~~
Law Implemented: NDCC 23-25-03

CHAPTER 33-15-20
CONTROL OF EMISSIONS FROM OIL AND GAS WELL PRODUCTION FACILITIES

Section	
33-15-20-01	General Provisions
33-15-20-02	Registration and Reporting Requirements
33-15-20-03	Prevention of Significant Deterioration Applicability and Source Information Requirements
33-15-20-04	Requirements for Control of Production Facility Emissions

33-15-20-01. General provisions.

1. **Applicability.** The provisions of this chapter apply to any oil or gas well production facility which emits sulfur or sulfur compounds to the atmosphere.

2. **Definitions.** As used in this chapter, all terms not defined herein shall have the meaning given them in section 33-15-01-04 or in North Dakota Century Code chapter 23-25.

   a. "Casinghead gas" means any gas or vapor, or both gas and vapor, indigenous to and produced from a pool classified as an oil pool by the North Dakota state industrial commission.

   b. "Completion" means an oil well must be considered completed when the first oil is produced through wellhead equipment into lease tanks from the ultimate producing interval after casing has been run. A gas well must be considered complete when the well is capable of producing gas through wellhead equipment from the ultimate producing zone after casing has been run. A dry hole must be considered complete when all North Dakota state industrial commission provisions of plugging are complied with.

   c. "Condensate" means the liquid hydrocarbons recovered at the surface that result from condensation due to reduced pressure or temperature of petroleum hydrocarbons existing in a gaseous phase in the reservoir.

   d. "Cubic foot of gas" means that volume of gas contained in one cubic foot [28.32 liters] of space and computed at a pressure of fourteen and seven-tenths pounds per square inch [1,034 grams per square centimeter] absolute at a base temperature of sixty degrees Fahrenheit [15.5 degrees Celsius].

e. "Gas well" means a well producing gas or natural gas from a common source of gas supply as determined by the North Dakota state industrial commission.

f. "Natural gas or gas" means and includes all natural gas and all other fluid hydrocarbons not herein defined as oil.

g. "Oil" means and includes crude petroleum oil and other hydrocarbons regardless of specific gravity which are produced at the wellhead in liquid form and the liquid hydrocarbons known as distillate or condensate recovered or extracted from gas, other than gas produced in association with oil and commonly known as casinghead gas.

h. "Oil well" means any well capable of producing oil or oil and casinghead gas from a common source of supply as determined by the North Dakota state industrial commission.

i. "Operator" means any person or persons who, duly authorized, is in charge of the development of a lease or the operation of a producing property.

j. "Owner" means the person who has the right to drill into and produce from a pool and to appropriate the oil or gas he produces.

k. "Pool" means an underground reservoir containing a common accumulation of oil or gas or both; each zone of a structure which is completely separated from any other zone in the same structure is a pool.

l. "Production facility" means all equipment, wells, flow lines, separators, treaters, tanks, flares, gathering lines, and auxiliary nontransportation-related equipment used in the exploration, development, or subsequent production or handling of oil and gas from an oil or gas well or wells which are located on one or more contiguous or adjacent surface properties~~,~~ and are under the control of the same person (or persons under common control).

m. "Recomplete" or "Recompletion" means the subsequent completion of a well in a different pool from the pool in which it was originally completed.

n. "Reservoir" means pool or common source of supply.

History: Effective October 1, 1987; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-20-02. Registration and reporting requirements.

1. The owner or operator of any oil or gas well that is completed or recompleted on or after July 1, 1987, shall submit an oil and gas well registration form available from the department, and an analysis of any gas produced from the well. The registration form and gas analysis must be submitted to the department within ninety days of the completion or recompletion date of the well. The registration form must contain sufficient information to allow the department to determine if the oil or gas well and associated production facility is in compliance with all applicable sections of this chapter.

2. The owner or operator of any oil or gas well that has been completed or recompleted prior to July 1, 1987, and emits ten tons per year or more of sulfur (all sulfur compounds expressed as S) from any associated production facility shall submit an oil and gas well registration form available from the department, and an analysis of any gas produced from the well. The registration form must contain sufficient information to allow the department to determine if the oil or gas well and associated production facility is in compliance with all applicable sections of this chapter. The registration form and gas analysis must be submitted to the department by January 1, 1988.

3. The owner or operator of any oil or gas well subject to this section shall inform the department of any change to the information contained on the registration form for a particular well and shall submit a new gas analysis if the composition or the volume of the gas produced from the well has changed from the previous analysis to cause an increase of ten tons per year or more of sulfur (all sulfur compounds expressed as S).

History: Effective October 1, 1987; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-20-03. Prevention of significant deterioration applicability and source information requirements.

1. Any oil or gas well production facility that emits or has the potential to emit two hundred fifty tons per year or more of any air contaminant regulated under North Dakota Century Code chapter 23-25, as determined by the department, shall comply with the permitting requirements of chapter 33-15-15.

2. To determine prevention of significant deterioration of air quality (PSD) applicability for sulfur dioxide, the following formula must be used:

$$E = 0.00084\ R\ T\ (\%\ H_2S)$$

Where: E = sulfur dioxide emission rate (tons/yr).

R = the average daily amount of gas burned, incinerated and/or flared (thousand cubic feet per day-MCFD) based upon a thirty-day period. The thirty-day period must be the last thirty operating days of a one hundred eighty-day period following the completion or recompletion of a well. In cases where the well is shut in for extended periods during the one hundred eighty-day period following completion or recompletion, a case-by-case determination of PSD can be requested of the department.

T = days of operation per year (days/yr). This number must be three hundred sixty-five unless there are verifiable physical limitations or a federally enforceable permit that limits the number of operating days.

$\%\ H_2S$ = mole percent hydrogen sulfide content as determined by the most recent gas analysis.

The formula is derived as follows:

$$E = \left(\frac{\text{Mcf}}{\text{day}}\right)\left(\frac{1000\ \text{cf}}{\text{Mcf}}\right)\left(\frac{\%\ H_2S}{100}\right)\left(\frac{\text{lb-mole}}{379.5\ \text{cf}}\right)\left(\frac{64.06\ \text{lb}\ SO_2}{\text{lb-mole}}\right)\left(\frac{\text{days}}{\text{year}}\right)\left(\frac{\text{ton}}{2000\ \text{lb}}\right)$$

$$E = 0.00084\ \left(\frac{\text{Mcf}}{\text{day}}\right)\left(\frac{\text{days of operation}}{\text{year}}\right)(\%\ H_2S)$$

Alternative methods of calculation may be used when approved by the department. Emissions from all onsite equipment at the production facility must be included in the total annual emission determination.

3. The owner or operator of any oil or gas well production facility subject to subsection 1 of this section shall provide information to demonstrate that emissions from the facility do not significantly contribute to exceeding the ambient air quality standards, as defined in chapter 33-15-02, or Class I or Class II increments, as defined in chapter 33-15-15; and shall address other requirements as specified in chapter 33-15-15. ~~The demonstration must be performed in accordance with the "North Dakota Guideline for Air Quality Modeling Analyses" available from the department or by actual monitoring.~~

History: Effective October 1, 1987 ; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-15-20-04. Requirements for control of production facility emissions.

~~1.~~ ~~Gases and vapors which are generated as wastes as the results of storage, oil exploration, development, production, refining, or processing operations and which contain hydrogen sulfide, must be incinerated, flared, or treated in an equally effective manner as approved by the department before being released to the ambient air. The emissions from all devices designed for incinerating, flaring, or treating waste gases and vapors shall comply with the requirements of subsection 4.~~

~~3.~~1. The emissions from all treaters, separators, engines, incinerators, flares, tanks, and other onsite equipment must comply with the requirements of subsection ~~4~~5.

2. Each flare used for treating gas containing hydrogen sulfide (H_2S), must be equipped and operated with an automatic ignitor or a continuous burning pilot~~.~~ which ~~must~~ be maintained in good working order. This is required even if the flare is used for emergency purposes only. A continuous burning pilot is required if this department determines that an automatic ignition system is ineffective due to production characteristics. The flare stack must be of sufficient height to allow for adequate dispersion of sulfur dioxide (SO_2) necessary to meet the requirements of this article.

3. Any volatile organic compound gas or vapor may be subject to controls as specified in chapter 33-15-07.

4. Routine inspections and maintenance of tanks, hatches, compressors, vent lines, pressure relief valves, packing elements, and couplings must be conducted to minimize emissions from equipment used for gas containing hydrogen sulfide (H_2S). Tank hatches must hold a positive working pressure or must be repaired or replaced.

~~4.~~5. The owner or operator of any oil or gas well production facility shall install equipment necessary to ensure that emissions comply with the ambient air quality standards of chapter 33-15-02, including, but not limited to, hydrogen sulfide and sulfur dioxide; the Class I and Class II increments for sulfur dioxide, nitrogen dioxide, and particulate matter of chapter 33-15-15, if applicable; the odor concentration ~~standards~~ limits of chapter 33-15-16; and any other applicable chapter of this article. For the purpose of this chapter, compliance must be determined outside the surface boundary of the production facility.

6. When a malfunction, the correction of a malfunction or maintenance at any oil and gas well production facility occurs that can be expected to cause the emission of air contaminants in violation of this article for longer than twenty-four hours, the person responsible for such installation shall notify the department of such malfunction or maintenance as set forth in section 33-15-01-13. This subsection pertains only to the reporting of malfunctions and maintenance and does not obviate the source's responsibility to comply with the remainder of this chapter or article.

7. The owner or operator of any oil and gas well production facility completed prior to the effective date of the revisions to section 33-15-20-04 shall comply with the requirements of this chapter within six months of the effective date of these revisions. The owner or operator of any oil and gas well production facility completed after the effective date of the revisions to section 33-15-20-04 shall comply with the requirements of this chapter within ninety days of the completion of the well.

History: Effective October 1, 1987; June 1, 1990.
General Authority: NDCC 23-25-03
Law Implemented: NDCC 23-25-03

33-19-01-01. Responsibility. It is the responsibility of any ~~operator of a public water or wastewater treatment plant~~ person or persons operating a water treatment, water distribution, wastewater treatment, or wastewater collection facility or system to comply with ~~the meaning of~~ this chapter pursuant to North Dakota Century Code chapter 23-26.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-02. Definitions. The definitions set forth in North Dakota Century Code section 23-26-02 shall be considered to be incorporated verbatim in this chapter. In addition, the following ~~terms~~ words and phrases shall have the meanings ascribed to them in this section:

1. "Direct responsible charge" means full and active ~~supervision~~ performance of onsite operation of a water or wastewater treatment ~~plant~~ facility or a water distribution or wastewater collection system ~~and~~, where the operator~~,~~ ~~in the operator's normal duties,~~ is ~~required to give~~ responsible for technical ~~advice~~ support of the facility or system and ~~supervision to others employed in a lesser capacity~~ provides direction to other operators, is responsible for shift operations, is responsible for the operation of a major segment of a facility or system, or is the sole person employed as the facility or system operator.

2. "Municipality" means a city or other public body created by or pursuant to state law.

3. ~~"Population equivalent" for a wastewater treatment plant or collection system shall mean the calculated population which would normally contribute the same amount of biochemical oxygen demand per day computed on the basis of seventeen hundredths of a pound [77.11 grams] of five-day twenty-degree Celsius biochemical oxygen per capita per day.~~ "Official census" means the census taken each decade or a special census taken by the United States bureau of census.

4. ~~"Wastewater collection system" means that portion of a wastewater system in which wastewater is conveyed to a treatment plant.~~ "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this state, any other state or political subdivision or agency thereof and any legal successor, representative agent, or agency of the foregoing.

5. "Population equivalent" for a wastewater treatment plant or collection system means the calculated population which would normally contribute the same amount of biochemical oxygen demand (BOD_5) per day computed on the basis of seventeen hundredths of one pound [77.11 grams] of five-day twenty-degree Celsius [68-degree Fahrenheit] biochemical oxygen demand per capita per day.

6. "Water treatment facility" means that portion of the water supply system which obtains and in some way alters the physical, chemical, or bacteriological quality of the water.

7. "Water distribution system" means that portion of the water supply system which obtains, stores, and conveys water from the treatment facility or other supply point to the premises of the consumer.

8. "Wastewater treatment facility" means the system or group of process units used for the treatment of wastewater and for the treatment and disposal of solids removed from such wastes.

9. "Wastewater collection system" means that portion of a wastewater system in which wastewater is conveyed to a treatment facility from the premises of a contributor.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-03. General.

1. The official census ~~taken each decade, or a special census taken by the United States bureau of census, shall~~ must be used to determine the population served by a water ~~supply or~~ treatment facility, water distribution system ~~and by a~~, wastewater treatment ~~plant~~ facility, or wastewater collection system if population equivalent data is not available.

2. ~~Plants with sufficient population equivalent or sufficiently complicated processes may be raised to a classification higher than that indicated by population alone.~~ The total number of people served on an annual average daily basis must be used to determine population served by a water treatment facility or a water distribution system if official census data is not available.

3. ~~Any plant which may have a combination of treatment processes which may be in different classes shall be classified in that process which requires the highest numerical classification.~~ Population equivalent must be used to determine the population served by a wastewater treatment facility or a wastewater collection system.

4. ~~An operator who has direct responsibility shall hold a certificate that is equal to or of higher grade numerically than that which the plan where the operator is employed is classified.~~ Facilities with sufficient population equivalent or sufficiently complicated processes may be raised to a classification higher than that indicated by population census alone.

5. ~~Certification is available to all plant or system operators. Those operators who are not required to be certified under the mandatory certification law and who can meet the qualifications for certification in a given grade should give serious consideration to applying for certification.~~ Any facility which may have a combination of treatment processes, some of which may be in different facility classes, must be classified based on the treatment process which requires the highest numerical classification.

6. An operator who has direct responsible charge shall hold a certificate that is equal to or of the next higher grade numerically than the classification of the facility where the operator is employed.

7. Certification is available to all facility or system operators. Those operators who are not required to be certified under the mandatory certification law and who can meet the qualifications for certification in a given grade should give serious consideration to applying for certification.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-04. Application for certification.

1. Applications for certification must be filed with the state department of health and consolidated laboratories on application forms supplied by the department. Applications ~~should~~ must be filed with the department for review prior to the examination. ~~The required fee shall accompany each application.~~ Separate applications ~~shall~~ must be submitted for each class of certificates.

2. An application for certification remains valid for a period of six months from the date of submission by the applicant. A new application for certification must be submitted following expiration of the six-month period.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-05, 23-26-07

33-19-01-05. Examinations.

1. Written examinations ~~shall~~ must normally be used in determining knowledge, ability, and judgment of the applicant. Oral examinations may be used in lieu of or in conjunction with the written examinations at the discretion of the department.

2. Examinations ~~shall~~ must be held at such places and times set by the department. Advance notice ~~shall~~ must be ~~given~~ provided. At least one examination ~~shall~~ session must be held annually. Additional ~~examinations~~ examination sessions may be held at the discretion of the department.

3. The certification fee is nonrefundable and must be received by the department at the time of application. Applicants will be notified of the results of the examinations. Papers and test material shall remain the property of the department. Applicants may, upon request, review the results with the department.

4. Separate examinations will be prepared for each ~~operator grade to cover the basic differences in the duties of operators for the different plant~~ facility or system classifications.

5. All examinations ~~shall~~ must be graded by personnel designated by the department.

6. Applicants who fail to pass ~~the~~ an examination may ~~repeat~~ rewrite the examination ~~at the next regularly scheduled examination~~, in the same category and classification level, once within one year from the date on which the failed examination was written. A new certification application and the required fee must be submitted to the department to rewrite an examination.

~~7. Any applicant may retake the examination one time for the same grade without payment of any additional fee.~~

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-06. Fees for certification.

1. Fees for certification, effective July 1, ~~1971~~ 1990, are as follows:

Grade I	~~$ 4.00~~	$10.00
Grade II	~~6.00~~	10.00
Grade III	~~8.00~~	10.00
Grade IV	10.00	

2. Fees for annual certificate renewals, effective July 1, 1990, are as follows:

Grade I	~~$ 2.00~~	$ 5.00
Grade II	~~3.00~~	5.00
Grade III	~~4.00~~	5.00
Grade IV	5.00	

3. The fee schedule for initial certification ~~in a grade~~ or for annual renewals may be revised by the department, as authorized by North Dakota Century Code chapter 23-26 as necessary to make the program self-sustaining.

4. Fees received from operators whose application for certification has been rejected will be returned.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC 23-26-06, 23-26-07

33-19-01-07. Issuance of certificates.

1. Upon ~~satisfactorily meeting~~ satisfactory compliance with the certification qualifications and examination and fee requirements provided herein, the department will issue a ~~suitable~~ certificate to the applicant. The certificate will indicate the operator certification grade, the class of ~~plant~~ facility or system the applicant is ~~qualified~~ certified to operate, the certificate number, and date of issuance.

2. ~~Certificates shall expire on the first day of April of each and every year at which time all certificates shall have been renewed by payment of the applicable renewal fee as set forth in section 33-19-01-06. Certificates which have been revoked for a cause, invalidated, or replaced by one of higher grade are not renewable, except as noted in other sections in this chapter. Annual renewal cards shall be issued by the department.~~ To maintain certification, all certified operators are required to earn continuing education credits by attending training programs, seminars, workshops, and schools established or officially recognized by the department.

   a. The number of continuing education credits that can be earned by attending officially recognized training programs, seminars, workshops, and schools must be established and regulated by the department with the advice and assistance of the board of certification.

   b. The number of continuing education credits to be earned within a three-year period of time must be established and regulated by the department with the advice and assistance of the board of certification.

Continuing education credit (CECs) requirements are as follows:

Certification Grade I - 12 CECs
Certification Grade II - 16 CECs
Certification Grade III - 20 CECs
Certification Grade IV - 24 CECs

c. Training programs offered by other government agencies, educational institutions, and operator organizations may be used for the continuing education credit requirements at the discretion of the department.

d. Former North Dakota operators who are no longer residents of the state and who no longer operate plants or systems within the boundaries of the state are not compelled to be active in the continuing education credit requirements. They may maintain valid North Dakota operator's certificates by paying the required annual renewal fees. If they return to work as an operator in the state as a transient or permanent resident, the continuing education credit requirements are in effect. All certified North Dakota operators presently not living in the state (this includes military personnel) must earn the number of training credits commensurate with certification grade level during their first year upon returning to North Dakota.

e. A certified operator not in compliance with the continuing education credit requirements, as determined by the department and reviewed by the board of certification, is subject to revocation or suspension of the operator's certification.

The department may revoke or suspend the certificate of an operator issued hereunder if it is found that the operator has practiced fraud or deception in obtaining the certificate or in the performance of the operator's duty as an operator; or when it is found that reasonable care, judgment, or the application of the operator's knowledge or ability was not used in the performance of the operator's duties; or when it is found that the operator is incompetent and unable properly to perform the operator's duties as an operator. No certificate may be revoked or suspended except after a hearing before the chief, environmental health and engineering services, state department of health and consolidated laboratories, or the chief's designated representative. If a certificate is suspended or revoked as herein provided, a new application for certification may be considered by the department if, when, and after the conditions upon which suspension or revocation was based have been corrected and evidence of this fact has been satisfactorily submitted to the department. A new certificate may then be granted by the department.

3. ~~An operator whose certificate is invalidated because of failure to renew due to termination of employment or other reasons may apply for renewal. The operator may be issued a certificate of the same classification if the request for renewal is received by the department within two years after the expiration date of the certificate and the delinquent fees are paid. Failure to renew for more than two successive years following expiration of the certificate will require reapplication, payment of fees, and reexamination before renewal is granted.~~ Certificates expire annually on the first day of July or at a date one year after issuance. Certificates which have been revoked for a cause, invalidated, or replaced by one of higher grade are not renewable, except as noted in this chapter. Annual certificate renewal cards must be issued by the department upon receipt of the renewal fee as previously set forth.

4. ~~Certified operators who desire to become certified in a higher grade must satisfactorily meet the qualification and examination requirements of the new grade and, upon payment of the proper fee, a new certificate shall be issued.~~ An operator whose certification is invalidated because of failure to renew may apply for renewal within one year following the certificate's expiration date. The operator may be issued a certificate of the same category, grade, and classification if the request for renewal is received by the department within one year after the expiration date of the certificate, the continuing education requirements are satisfied, and all delinquent fees are paid. Failure to renew certification for a period of more than one year following expiration of the certificate will require requalification by reapplication, reexamination, and payment of examination fees before recertification is granted.

5. ~~Certificates shall remain valid as long as the operator uses reasonable care, judgment, and application of the operator's knowledge in the performance of the operator's duties. Certificates may be revoked as provided in chapter 23-26. No certificate will be valid if obtained through fraud, deceit, misrepresentation, or the submission of inaccurate data or qualifications.~~ To become certified in a higher grade level of the same category, certified operators shall satisfy the qualifications, application, and examination requirements of the new grade and, upon receipt of the proper certification fee by the department, a new certificate for the new grade must be issued to the operator.

6. ~~The department may issue certificates, without examination, to any person holding a certificate from any other state, territory, possession of the United States or any country providing the requirements for certification of operators under which the person's certificate was issued are equal to or higher than specified under this chapter for a like certificate and providing further that reciprocal privileges are granted to certified operators in North Dakota.~~ Certificates remain valid as long as the operator exercises reasonable care and judgment in the application of duties and satisfies the continuing education and annual renewal requirements as previously set forth. Certificates may be revoked as provided in North Dakota Century Code chapter 23-26. No certificate will be valid if obtained through fraud, deceit, misrepresentation, or the submission of false or inaccurate data, information, or qualifications.

7. ~~Certificates in an appropriate classification may be issued without examination to qualifying operators as provided by North Dakota Century Code chapter 23-26.~~ The department may issue certificates by reciprocity, without written examination, to any person holding a certificate from any other state, territory, possession of the United States of America, or any country providing that the requirements for certification of operators under which the operator's certificate was issued are equal to or higher than specified under this chapter for a like certificate and providing further that reciprocal privileges are granted to certified operators in North Dakota.

8. ~~A restricted certificate of proper classification shall be issued without examination to operators of treatment works, collection systems, or distribution systems, including the person who was in responsible charge on July 1, 1971. The governing body, or owner, must certify such person, in writing, to the department. The certificates so issued will be valid only for that particular treatment plant or system and shall be marked "restricted".~~ Certification certificates in an appropriate grade and classification may be issued without examination to qualifying operators as provided by North Dakota Century Code chapter 23-26.

9. A temporary restricted ~~certificate~~ operator's permit may be issued by the department upon application by the ~~municipality~~ facility or system owner on behalf of the operator where ~~unusual~~ circumstances may exist to warrant issuance. A temporary restricted ~~certificate~~ operator's permit will be valid ~~until the operator meets the minimum requirements for certification, at which time the operator shall apply for certification and write the first examination offered~~ for one year from the date of issuance. When the operator satisfies the minimum grade level qualifications and requirements for certification, the operator shall submit an application for

certification to the department and write the appropriate category and class examination during the first examination session offered by the department following the date of application.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-05, 23-26-07

33-19-01-08. Water ~~plant~~ treatment facility classifications. ~~Classification shall be generally in accordance with the following four classes except that the department may make changes in classification in accordance with the needs created by particular complexities of any specific plant or distribution system by reason of special features of design, or by reason of a source of supply which is particularly hazardous, or characteristics which make operation more difficult than normal, or a combination of such conditions.~~ Water treatment facilities must be classified in one of four classes. Classifications must be based on population served, design population, type of treatment facility, raw water quality and volume of water to be treated, and complexity of sludge handling units. Facilities may be classified one level higher than indicated solely by population at the discretion of the department if the facility has special design features or complex features or characteristics unusually difficult to operate, by reason of raw water unusually difficult to treat, by reason of volume of water treated, or by reason of a combination of such conditions or circumstances.

1. Class I.

   ~~a.~~ ~~All plants not listed in other classes requiring chemical control of operation and designed to serve a population of less than fifteen thousand. This will include plants with facilities such as iron and manganese removal by oxidation, zeolite softening, chlorination, fluoridation, aeration, or combinations of these processes.~~ All water facilities using chemical treatment processes and designed to serve a population of less than five thousand persons. This will include water facilities utilizing chlorination, fluoridation, corrosion control, sequesting, or combinations of these processes or other processes that involve simple chemical addition and a minor degree of operational control.

   ~~b.~~ ~~All pumping and distribution systems serving a population less than fifteen thousand.~~

2. Class II.

   a. ~~All plants using filtration or chemical softening processes requiring chemical and bacteriological control and designed to serve a population of less than one~~

~~thousand five hundred. This includes facilities for coagulation and sedimentation.~~ All water facilities using chemical treatment processes and designed to serve a population of five thousand to fifteen thousand persons. This will include water facilities utilizing chlorination, fluoridation, corrosion control, sequestering, or combinations of these processes or other processes that involve simple chemical addition and a moderate degree of operational control.

b. ~~All plants using chlorination requiring laboratory for bacteriological control of operation and designed to serve a population of less than fifteen thousand.~~ All water plants using chemical softening processes and filtration requiring a moderate degree of operational control serving a population of less than one thousand persons.

c. ~~All plants requiring chemical control of operation designed to serve a population in excess of fifteen thousand. (Refer to subdivision a of subsection 1.)~~ All water plants using coagulation, sedimentation, and filtration for clarification requiring a moderate degree of operational control serving a population of less than one thousand five hundred persons.

d. ~~All pumping and distribution systems serving between fifteen thousand and fifty thousand population.~~ All water plants using chemical oxidation of iron or manganese and filtration requiring a moderate degree of operational control serving a population of less than two thousand persons.

3. Class III.

a. ~~All plants using filtration and chemical softening processes requiring chemical and bacteriological control of operation and designed to serve between one thousand five hundred and fifteen thousand population. This includes facilities for coagulation and sedimentation.~~ All water facilities using chemical treatment processes and designed to serve a population of fifteen thousand persons or more. This will include water facilities utilizing chlorination, fluoridation, corrosion control, sequestering, or combinations of these processes or other processes that involve simple chemical addition and a high degree of operational control.

b. ~~All plants using chlorination requiring laboratory for bacteriological control of operation and designed to serve a population in excess of fifteen thousand.~~ All water plants using chemical softening processes and filtration requiring a high degree of operational control serving a population of one thousand to five thousand persons.

c. ~~All pumping and distribution systems serving in excess of fifty thousand population.~~ All water plants using coagulation, sedimentation, and filtration for clarification requiring a high degree of operational control serving a population of one thousand five hundred to ten thousand persons.

d. All water plants using chemical oxidation of iron or manganese and filtration requiring a high degree of operational control serving a population of two thousand to fifteen thousand persons.

4. Class IV. ~~All plants using filtration and chemical softening processes requiring chemical and bacteriological control of operation and designed to serve population in excess of fifteen thousand. This includes facilities for coagulation and sedimentation.~~

    a. All water plants using chemical softening processes and filtration requiring a high degree of operational control serving a population of five thousand or more persons.

    b. All water plants using coagulation, sedimentation, and filtration for clarification requiring a high degree of operational control serving a population of ten thousand or more persons.

    c. All water plants using chemical oxidation of iron or manganese and filtration requiring a high degree of operational control serving a population of fifteen thousand or more persons.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-05, 23-26-07(8)~~ 23-26-03, 23-26-07

33-19-01-08.1. Water distribution system classifications. Water distribution systems must be classified in one of four classes. Classifications must be based on population served, design population, type of distribution system, and the volume water to be handled. Systems may be classified one level higher than indicated solely by population at the discretion of the department by reason of the incorporation in the system of special design features or complex features or characteristics unusually difficult to operate, by reason of conditions of volume and flow, or by reason of a combination of such conditions and circumstances.

1. Class I. All water distribution systems serving a population of less than one thousand five hundred persons.

2. Class II. All water distribution systems serving a population of one thousand five hundred to fifteen thousand persons.

3. Class III. All water distribution systems serving a population of fifteen thousand to fifty thousand persons.

4. Class IV. All water distribution systems serving a population of fifty thousand persons or more.

History: Effective June 1, 1990.
General Authority: NDCC 23-26-07
Law Implemented: NDCC 23-26-03, 23-26-07

33-19-01-09. ~~Waste~~ Wastewater treatment ~~plant~~ facility classifications. Wastewater treatment ~~plants shall~~ facilities must be classified in one of four classes. ~~These classifications shall~~ Classifications must be ~~made according to~~ based on population served, design population, type of treatment works, character and volume of wastes to be treated, and the use and nature of the water resources receiving the ~~plant~~ facility effluent. ~~Classifications shall be based on the population served or for which the plant is designed except that plants~~ Facilities may be classified ~~in a group~~ one level higher than indicated solely by population at the discretion of the department ~~by reason of the incorporation in the plant of~~ if the facility has special ~~features of design or characteristics more difficult to operate than usual~~ design features or complex features or characteristics unusually difficult to operate, ~~or~~ by reason of a waste unusually difficult to treat, ~~or~~ by reason of conditions of flow, or ~~use~~ by reason of the receiving ~~waters~~ water quality classification requiring an unusually high degree of ~~plant operation~~ facility operational control, or ~~for combinations~~ by reason of a combination of such conditions or circumstances.

1. Class I.

   ~~a. All mechanical plants serving a population equivalent of less than one thousand five hundred persons and waste stabilization lagoons serving a population equivalent of less than ten thousand persons.~~ All wastewater stabilization ponds, land treatment facilities, wetlands treatment facilities, or other nonmechanical facilities requiring a minor degree of operational control serving a population equivalent of less than ten thousand persons.

   ~~b. All wastewater collection systems serving a population of less than twenty thousand persons.~~

2. Class II.

   a. All mechanical ~~plants~~ facilities, mechanically aerated stabilization ponds, oxidation ditches, or other ~~plants~~ facilities requiring a ~~high~~ moderate degree of operational control serving a population equivalent of ~~one thousand five hundred to~~ less than ten thousand persons.

b. All ~~waste~~ wastewater stabilization ~~lagoons or less complicated~~ ponds, land treatment facilities, wetlands treatment facilities, or other nonmechanical facilities requiring a minor degree of operational control serving a population equivalent ~~in excess~~ of ten thousand persons or more.

~~c. All wastewater collection systems serving a population in excess of twenty thousand persons.~~

3. Class III.

   a. All mechanical facilities, mechanically aerated stabilization ponds, oxidation ditches, or other facilities requiring a ~~high~~ moderate degree of operational and laboratory control serving a population equivalent ~~in excess~~ of ten thousand persons or more.

   b. All activated sludge ~~plants~~ facilities, trickling filter ~~plants~~ facilities, rotating biological contactor facilities, separate sludge ~~digestion plants~~ stabilization facilities, or other mechanical ~~plants~~ facilities requiring a high degree of operational and laboratory control serving a population equivalent of less than ten thousand ~~to forty thousand~~ persons.

4. Class IV. All activated sludge ~~plants~~ facilities, trickling filter ~~plants~~ facilities, rotating biological contactor facilities, separate sludge ~~digestion plants~~ stabilization facilities, or other mechanical ~~plants~~ facilities requiring a high degree of operational and laboratory control serving a population equivalent ~~in excess of forty~~ of ten thousand persons or more.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-05, 23-26-07(8)~~ 23-26-03, 23-26-07

33-19-01-09.1. Wastewater collection system classifications. Wastewater collection systems must be classified in one of four classes. Classifications must be based on population served, design population, type of collection system, and the character and volume of wastes to be handled. Systems may be classified one level higher than indicated solely by population at the discretion of the department by reason of the incorporation in the system of special design features or complex features or characteristics unusually difficult to operate, by reason of conditions of flow, or by reason of a combination of such conditions and circumstances.

1. Class I. All wastewater collection systems serving a population of less than one thousand five hundred persons.

2. Class II. All wastewater collection systems serving a population of one thousand five hundred to fifteen thousand persons.

3. Class III. All wastewater collection systems serving a population of fifteen thousand to fifty thousand persons.

4. Class IV. All wastewater collection systems serving a population of fifty thousand persons or more.

History: Effective June 1, 1990.
General Authority: NDCC 23-26-07
Law Implemented: NDCC 23-26-03, 23-26-07

33-19-01-10. Change of classification. Classification of any treatment ~~plant~~ facility or distribution or collection system may be changed at the discretion of the department by reason of changes in any condition or circumstance on which the original classification was ~~predicated~~ based. ~~Due~~ The department shall provide notice of any ~~such~~ classification change ~~shall be given~~ to the owner of the ~~treatment plant~~ facility or system.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-03, 23-26-07

33-19-01-11. Certification requirements.

1. Operator certification is mandatory for all persons employed in the operation or maintenance of water treatment facilities, water distribution systems, wastewater treatment facilities, or wastewater collection systems as required by subsection 8 of North Dakota Century Code section 23-26-07 and applicable federal laws and regulations.

2. Four grades of operators for ~~waterworks and waste~~ water treatment facilities, water distribution systems, wastewater treatment ~~plants~~ facilities, and wastewater collection systems are hereby established. To qualify for certification in a given grade, an applicant must ~~meet~~ satisfy the ~~educational~~ education and experience requirements, or their equivalents, ~~for that particular~~ of the grade for which the certification application is submitted.

3. All applicants must pass ~~an examination appropriate~~ a certification examination, with a score of seventy percent or greater, as developed and administered by the department for the ~~grade in~~ class of facility or system for which the certification application is ~~made~~ submitted, except those operators qualifying for certification as specified in

~~subsections 1 and 2 of~~ North Dakota Century Code section 23-26-05.

4. The following operator grade level qualifications are intended to be compatible with and correspond to the facility or system classification of the same class level.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-05, 23-26-07

33-19-01-12. Water ~~plant~~ treatment facility operator ~~classifications~~ qualifications. The following grade qualifications are intended to be as nearly compatible as possible to the corresponding plant or system classification.

1. Grade I.

   a. Post high school education in the allied sciences and a minimum one year of acceptable operation of water treatment facilities of Class I or higher;

   b. Completion of high school or equivalent, and a minimum one year of acceptable operation of a water treatment ~~plant~~ facility of Class I or higher; or

   ~~b.~~ c. A combination of ~~educational~~ education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for minimum experience requirements unless an exception is granted under section 33-19-01-07.

2. Grade II.

   a. A four-year college degree in civil, sanitary, environmental, or chemical engineering or allied sciences and a minimum one year of acceptable operation of water treatment facilities of Class I or higher, one year of which must have been in a position of direct responsible charge;

   b. Two years post high school education in the allied sciences and a minimum two years of acceptable operation of water treatment facilities of Class I or higher, one year of which must have been in a position of direct responsible charge;

   c. Completion of high school or equivalent, and a minimum three years of acceptable operation of water treatment ~~plants~~ facilities of Class I or higher, one year of which must have been in a position of direct responsible charge; or

~~b.~~ d. A combination of ~~educational~~ education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

3. Grade III.

   a. A four-year college degree in civil, sanitary, environmental, or chemical engineering or allied sciences and a minimum two years of acceptable operation of water treatment facilities of Class II or higher, one year of which must have been in a position of direct responsible charge;

   b. Two years post high school education in the allied sciences and a minimum three years of acceptable operation of water treatment facilities of Class II or higher, two years of which must have been in a position of direct responsible charge;

   c. Completion of high school or equivalent, and ~~three~~ a minimum five years of acceptable operation of water treatment ~~plants~~ facilities of Class II or higher, two years of which must have been in a position of ~~major responsibility~~ direct responsible charge; or

   ~~b.~~ d. A combination of ~~educational~~ education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

4. Grade IV.

   a. A four-year college degree in civil, sanitary, environmental, or chemical engineering or allied sciences and ~~at least~~ a minimum three years of acceptable operation of water treatment ~~plants~~ facilities of Class III or higher, ~~one year~~ two years of which must have been in a position of ~~major responsibility~~ direct responsible charge;

   b. Two years of ~~college in~~ post high school education in civil, sanitary, environmental, or chemical engineering or allied sciences and ~~at least~~ a minimum five years of acceptable operation of water treatment ~~plants~~ facilities of Class III or higher, two years of which must be in a position of ~~major responsibility~~ direct responsible charge; ~~or~~

   c. Graduation from an accredited high school or equivalent with special training in chemistry ~~and~~, bacteriology, and hydraulics and ~~at least six~~ a minimum seven years of acceptable ~~experience in~~ operation of water treatment facilities of Class III or higher ~~treatment plants; four~~, three years of which must have been in a position of ~~major responsibility~~ direct responsible charge; or

d. A combination of educational qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-13. Water distribution system operator qualifications. ~~The requirements for water distribution system operators in a given category are the same as those for treatment plant operators, except that the experience requirements are for the water distribution system in the group under consideration instead of the treatment plant.~~

1. Grade I.

   a. Post high school education in the allied sciences or trades and a minimum one year of acceptable operation of water distribution system of Class I or higher;

   b. Completion of high school or equivalent, and a minimum one year of acceptable operation of a water distribution system of Class I or higher; or

   c. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for minimum experience requirements unless an exception is granted under section 33-19-01-07.

2. Grade II.

   a. A four-year college degree in civil, sanitary, mechanical, or environmental engineering or allied sciences and a minimum one year of acceptable operation of water distribution system of Class I or higher, one year of which must have been in a position of direct responsible charge;

   b. Two years post high school education in the allied sciences or trades and a minimum two years of acceptable operation of water distribution systems of Class I or higher, one year of which must have been in a position of direct responsible charge;

c. Completion of high school or equivalent, and a minimum three years of acceptable operation of water distribution systems of Class I or higher; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

3. Grade III.

a. A four-year college degree in civil, sanitary, mechanical, or environmental engineering or allied sciences and a minimum two years of acceptable operation of water distribution system of Class II or higher, one year of which must have been in a position of direct responsible charge;

b. Two years post high school education in the allied sciences or trades and a minimum three years of acceptable operation of water distribution systems of Class II or higher, two years of which must have been in a position of direct responsible charge;

c. Completion of high school or equivalent, and a minimum five years of acceptable operation of water distribution systems of Class II or higher, two years of which must have been in a position of direct responsible charge; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

4. Grade IV.

a. A four-year college degree in civil, sanitary, mechanical, or environmental engineering or allied sciences and a minimum three years of acceptable operation of water distribution systems of Class III or higher, two years of which must have been in a position of direct responsible charge;

b. Two years of post high school education in civil, sanitary, mechanical, or environmental engineering or allied sciences and trades and a minimum five years of acceptable operation of water distribution systems of Class III or higher, two years of which must be in a position of direct responsible charge;

c. Graduation from an accredited high school or equivalent with special training in pipeline construction, mechanical trades, and hydraulics and a minimum seven years of acceptable operation of water distribution systems of Class III or higher, three years of which must have been in a position of direct responsible charge; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-14. Wastewater treatment ~~plant~~ facility operator qualifications.

1. Grade I.

   a. Post high school education in the allied sciences and a minimum one year of acceptable operation of wastewater treatment facility of Class I or higher;

   b. Completion of high school or equivalent, and a minimum one year of acceptable operation of a wastewater treatment ~~plant~~ facility of Class I or higher; or

   ~~b.~~ c. A combination of ~~educational~~ education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for minimum experience requirement unless an exception is granted under section 33-19-01-07.

2. Grade II.

   a. A four-year college degree in civil, sanitary, environmental, or chemical engineering or allied sciences and a minimum one year of acceptable operation of wastewater treatment facility of Class I or higher, one year of which must have been in a position of direct responsible charge;

   b. Two years post high school education in the allied sciences and a minimum two years of acceptable operation of wastewater treatment facility of Class I or higher, one year of which must have been in a position of direct responsible charge;

c. Completion of high school or equivalent, and a minimum three years of acceptable operation of ~~a~~ wastewater treatment ~~plant or~~ facilities of Class I or higher; or

~~b.~~ d. A combination of ~~educational~~ education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for the minimum experience requirement unless an exception is granted under section 33-19-01-07.

3. Grade III.

a. A four-year college degree in civil, sanitary, environmental, or chemical engineering or allied sciences and a minimum two years of acceptable operation of wastewater treatment facilities of Class II or higher, one year of which must have been in a position of direct responsible charge;

b. Two years post high school education in the allied sciences and a minimum three years of acceptable operation of wastewater treatment facilities of Class II or higher, two years of which must have been in a position of direct responsible charge;

c. Completion of high school or equivalent, and ~~three~~ a minimum five years of acceptable operation of wastewater treatment ~~plants~~ facilities of Class II or higher, two years of which must have been in a position of direct responsible charge; or

~~b.~~ d. A combination of ~~educational~~ education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for the minimum experience requirement unless an exception is granted under section 33-19-01-07.

4. Grade IV.

a. A four-year college degree in civil, sanitary, environmental, or chemical engineering or allied sciences ~~or equivalent,~~ and ~~at least~~ a minimum three years of acceptable operation of wastewater treatment ~~plants in~~ facilities of Class III or higher, ~~one year~~ two years of which must have been in a position of direct responsible charge; ~~or~~

b. ~~Graduation from an accredited high school or equivalent with special training in chemistry and bacteriology and at least four years' experience in direct responsibility of operation, or six years' acceptable experience in Class III or higher wastewater treatment plants.~~ Two years of post high school education in civil, sanitary, environmental, or chemical engineering or allied sciences and a minimum five years of acceptable operation of wastewater treatment facilities of Class III or higher, two years of which must have been in a position of direct responsible charge;

c. Graduation from an accredited high school or equivalent with special training in microbiology, chemistry, and hydraulics and a minimum seven years of acceptable operation of wastewater treatment facilities of Class III or higher, three years of which must have been in a position of direct responsible charge; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-15. Wastewater collection system operator qualifications. ~~The requirements for wastewater collection system operators in a given category are the same as those for wastewater treatment plant operators, except that the experience requirements are for the wastewater collection system in the group under consideration instead of the treatment plant.~~

1. Grade I.

   a. Post high school education in the allied sciences or trades and a minimum one year of acceptable operation of wastewater collection system of Class I or higher;

   b. Completion of high school or equivalent, and a minimum one year of acceptable operation of a wastewater collection system of Class I or higher; or

   c. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for minimum experience requirements unless an exception is granted under section 33-19-01-07.

2. Grade II.

   a. A four-year college degree in civil, sanitary, mechanical, or environmental engineering or allied sciences and a minimum one year of acceptable operation of wastewater collection system of Class I or higher, one year of which must have been in a position of direct responsible charge;

b. Two years post high school education in the allied sciences or trades and a minimum two years of acceptable operation of wastewater collection system of Class I or higher, one year of which must have been in a position of direct responsible charge;

c. Completion of high school or equivalent, and a minimum three years of acceptable operation of wastewater collection systems of Class I or higher; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute shall be permitted for the minimum experience requirement unless an exception is granted under section 33-19-01-07.

3. Grade III.

a. A four-year college degree in civil, sanitary, mechanical, or environmental engineering or allied sciences and a minimum two years of acceptable operation of wastewater collection system of Class II or higher, one year of which must have been in a position of direct responsible charge;

b. Two years post high school education in the allied sciences or trades and a minimum three years of acceptable operation of wastewater collection system of Class II or higher, two years of which must have been in a position of direct responsible charge;

c. Completion of high school or equivalent, and a minimum five years of acceptable operation of wastewater collection system of Class II or higher, two years of which must have been in a position of direct responsible charge; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

4. Grade IV.

a. A four-year college degree in civil, sanitary, mechanical, or environmental engineering or allied sciences and a minimum three years of acceptable operation of wastewater collection systems of Class III or higher, two years of which must have been in a position of direct responsible charge;

b. Two years of post high school education in civil, sanitary, mechanical, or environmental engineering or allied sciences and trades and a minimum five years of acceptable operation of wastewater collection systems of Class III or higher, two years of which must have been in a position of direct responsible charge;

c. Graduation from an accredited high school or equivalent with special training in pipeline construction, mechanical trades, and hydraulics and a minimum seven years of acceptable operation of wastewater collection systems of Class III or higher, three years of which must have been in a position of direct responsible charge; or

d. A combination of education qualifications and experience that will be satisfactory to the department. No substitute may be permitted for the minimum experience requirement, unless an exception is granted under section 33-19-01-07.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

33-19-01-16. Substitutions or equivalents. ~~Applicable education may be substituted for experience and applicable experience may be substituted for education as follows:~~

~~1. One year of appropriate college work may be considered as equivalent to a maximum of two years of experience (or one year of experience with responsible charge). Where education is substituted for experience, it shall not exceed an amount which would reduce the requirement of actual experience to less than one year for any classification or less than two years' actual experience for Classes II and III and three years for Class IV.~~

~~Education applied to experience requirement cannot also be applied to education requirement.~~

~~2. Satisfactory completion of the state department of health's comprehensive classroom and on-the-job training course is equivalent to any one of the following:~~

~~a. Two years of high school.~~

~~b. Two years of acceptable experience.~~

~~c. One year of direct responsibility of operation.~~

~~d. One year of college (nonengineering).~~

~~3. Satisfactory attendance and completion of the annual short course seminar for operators shall be equivalent to any one of the following:~~

~~a. One-half year of high school.~~

~~b. One-half year of acceptable experience.~~

~~4. One year of acceptable operating experience may be considered equivalent to two years of high school. An acceptable high school equivalency certificate may be used to substitute for graduation from high school.~~

~~One year of responsible charge or two years' experience in an important phase of operation other than responsible charge will be considered as equivalent to a maximum of one year of college.~~

~~Experience applied to educational requirement may not be applied to experience requirement.~~

In determining the qualifications of operators desiring to be certified, the following substitutions or equivalents may be used:

1. One year of acceptable operating experience may be considered equivalent to one year of high school.
2. Experience applied to the educational requirement may not also be applied to the experience requirement.
3. An acceptable high school equivalency certificate may be used to substitute for graduation from high school.
4. No substitutions or equivalents will be allowed in lieu of the minimum acceptable experience in the operation of water treatment, water distribution, wastewater treatment, and wastewater collection facilities or systems.
5. The department may waive the experience requirements in an exceptional ~~situation~~ set of circumstances, with the advice and assistance of the board.

History: Amended effective June 1, 1990.
General Authority: NDCC ~~23-01-03~~ 23-26-07
Law Implemented: NDCC ~~23-26-07(8)~~ 23-26-07

STAFF COMMENT: Article 33-35 contains all new material but is not underscored so as to improve readability.

ARTICLE 33-35

REVOLVING LOAN FUND

Chapter	
33-35-01	State Water Pollution Control Revolving Fund

CHAPTER 33-35-01
STATE WATER POLLUTION CONTROL REVOLVING FUND

Section	
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33-35-01-01. Definitions. For the purpose of this chapter, the following definitions apply:

1. "Act" means the federal Water Pollution Control Act of 1972, Public Law 92-500, as amended by the Water Quality Act of 1987 [Pub. L. 100-4; 33 U.S.C. 1251-1376].

2. "Bank of North Dakota" means the Bank of North Dakota as created by the North Dakota Century Code chapter 6-09.

3. "Bond bank" means the North Dakota municipal bond bank created by North Dakota Century Code chapter 6-09.4, or a public body and instrumentality of the state which succeeds to the powers, duties, and functions of the bond bank.

4. "Construction" means the erection, acquisition, alteration, reconstruction, improvement, or extension of wastewater treatment works or section 319 projects, including preliminary planning to determine the economic feasibility, the engineering, architectural, legal, fiscal, and economic investigations and studies, surveys, designs, plans, procedures, and other similar action necessary in the building and inspection supervision of the construction of wastewater treatment works or section 319 projects.

5. "Department" means the North Dakota state department of health and consolidated laboratories operating through the division of water supply and pollution control.

6. "Director" means the director of the division of water supply and pollution control, North Dakota state department of health and consolidated laboratories.

7. "Facility plan" means an engineering evaluation of present and future treatment needs, an evaluation of several treatment alternatives, and the selection and justification of a final treatment alternative.

8. "Financial agent" means the North Dakota municipal bond bank or such other agent as the department selects.

9. "Financial assistance" means the lending of funds from the state revolving fund by the department and its financial agent to a political subdivision through the purchase of its bond, note, warrant, or other evidence of indebtedness issued to finance or refinance all or part of the construction of wastewater treatment works or section 319 projects. Financial assistance also includes all other forms of eligible assistance under the Act.

10. "Intended use plan" means a document prepared annually by the department on behalf of the state which provides assurances and specific proposals, including a list of potential projects eligible for assistance from the state revolving fund and a federal payment schedule.

11. "Political subdivision" means any municipality, intermunicipal or interstate agencies, or any other entity constituting a political subdivision under the laws of North Dakota.

12. "Project cost" means the cost of construction of wastewater treatment works and the capitalized interest necessary for the construction financing.

13. "Section 319 project" means a project authorized and undertaken in conformance with section 319 of the Act [33 U.S.C. 1329] that uses some form of land treatment, watershed treatment, or best management practices to improve water quality.

14. "State revolving fund" means the state water pollution control revolving loan fund as established in North Dakota Century Code chapter 61-28.2.

15. "Wastewater treatment works" means a facility used for the disposal of pollutants which may include, but is not limited to, wastewater treatment facilities, infiltration or inflow correction, major sewer system rehabilitation, new collector sewers, new interceptors and appurtenances, combined sewer correction, and storm sewer projects.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-02. Eligibility.

1. A political subdivision is eligible for financial assistance under the state revolving fund if its project is included in the current intended use plan.

2. Loans may be made only to political subdivisions that:

   a. Demonstrate tangible financial capability to assure sufficient revenues to operate and maintain the facility for its useful life and to repay the loan.

   b. Establish an acceptable method of repayment of the loan.

   c. Agree to maintain financial records in accordance with governmental accounting standards and to conduct an annual audit of the facility's financial records.

   d. Provide such assurances as are required by the Act and as reasonably requested by the department.

   e. Provide a department approved facility plan.

3. Financial assistance may be awarded for projects included in the intended use plan for the following activities:

    a. The financing or refinancing of construction or other assistance of publicly owned wastewater treatment works as defined in section 212 of the Act that appear on North Dakota's project priority list and included in the intended use plan. This includes planning, design, and construction of storm sewers after September 30, 1990; or

    b. Implementation of a nonpoint source pollution control management program under section 319 of the Act.

    c. Operation and maintenance manual preparation and operator startup training.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-03. Refinancing. Loans may be made to political subdivisions to refinance existing debt obligations if they were incurred and building was initiated after March 7, 1985, and if the debts were used to finance projects identified in the intended use plan. In addition, the projects must satisfy the statutory requirements contained in section 602(b)(6) of the Act.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-04. Intended use plan. The department will annually prepare a wastewater treatment works construction priority list according to the department's review and point award system currently used in the construction grants program. All proposed wastewater treatment works must be on the priority list in order to be funded under the state revolving fund program. It is not necessary for section 319 projects to be on the priority list, but they must appear in the intended use plan. The priority list must also be incorporated into the annual intended use plan.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-05. Annual public hearing on proposed intended use plan. Upon tentative completion of the annual revision of the intended use plan, the department shall conduct a hearing to receive oral and written comments from the public on the proposed intended use plan. At least forty-five calendar days' notice must be given of the public hearing in at least two newspapers of general circulation in different parts of the state. Written comments must be accepted during this period. After all

comments are received, the department shall compile and adopt the final list at the hearing.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-06. Emergency amendment of intended use plan. The department may add a project to the intended use plan, by emergency amendment, if the proposed project will alleviate or mitigate a dire physical threat to the health and safety of persons or if the proposed project is necessary to take advantage of an unexpected economic development opportunity which will be lost unless action is taken. Economic opportunity considerations will not be the primary focus of any state revolving fund project. The primary considerations in every project will be public health, water quality, and public safety issues.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-07. Project priority list removal procedure. The department may remove a project from the intended use plan if the project has been fully funded or the project is no longer eligible under the priority system or the political subdivision responsible for the project has expressed in writing no interest in the program.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-08. Project bypass procedure. The department may bypass the priority established for funding as follows:

1. The political subdivision being bypassed provides to the state a written statement endorsing the bypass; or

2. The political subdivision being bypassed fails to submit information within the timeframe required by written notice from the department.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-09. Deadline for application. Project assistance applications may be submitted at any time by eligible political subdivisions.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-10. Reserve for section 319 nonpoint source management projects. The department may set aside a portion of the available funds for section 319 nonpoint source projects for the first six months of each fiscal year. The amount of the set-aside must be determined by the department.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-11. Application procedure. The application procedure will be designed by the department and approved by the environmental protection agency to include all necessary requirements as contained in the Act and applicable federal regulations, state laws, and rules. The application procedure will be contained in the state revolving fund procedures handbook.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-12. Loan agreement.

1. The loan agreement will be a legally binding contract between the financial agent and the political subdivision. The agreement will contain general conditions and may, if necessary, contain special conditions.

2. The general conditions of a loan agreement will include the requirements of laws, rules, and policies of the state of North Dakota.

3. The special conditions of the loan agreement will relate to specific provisions unique for an individual project including, but not limited to, time schedules and performance requirements and such other requirements as are reasonably requested by the financial agent.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-13. Release. By its acceptance of the loan agreement, the political subdivision releases and discharges the department, its officers, agents (including its financial agent), and employees from all liabilities, obligations, and claims arising out of the project work under the loan agreement.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-14. Loan amendments. The loan agreement may be amended in writing according to the terms of the respective loan agreement including, but not limited to, an amendment when the amount of loan funds necessary to pay project costs are greater than the original amount in the loan agreement.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-15. Inspections. During the building of the project, the political subdivision shall provide inspection services sufficient to ensure that the project is constructed in accordance with approved plans and specifications. The department will conduct interim project inspections to determine compliance with approved plans and specifications and loan agreement, as appropriate.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-16. Loan default. The political subdivision must agree that upon default in the payments of principal and accrued interest on the loan or in the performance of any convenant or condition of the loan agreement, the department, through its financial agent, may at its option, do one or more of the following:

1. Declare immediately due and payable the entire principal amount then outstanding and the accrued interest;

2. Incur and pay reasonable expenses, through the account of the political subdivision, for repair, maintenance, and operation of the facility, and other expenses necessary to cure the cause of default; or

3. Proceed to enforce payment of such interest or principle or other amount then due and payable pursuant to applicable provisions of law or loan agreement.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-17. Financing method.

1. A loan shall be made for a period of time not to exceed twenty years or the design life of the wastewater treatment works facility, whichever is shorter.

2. Interest on the loan accrues and must be paid as provided in the loan agreement.

3. All repayment schedules must be established by the terms and conditions of the loan agreement. The repayment by the political subdivision of the loan will begin within one year after the project is capable of operation or:

   a. For special assessment warrants, upon a date which is sufficient to allow time for special assessments to be spread in the tax levy year for the political subdivision; and

   b. For revenue bonds, at the time specified in the respective loan agreement which shall reasonably attempt to begin after the project is in full operation.

   In all cases, repayments must begin within one year after the project is capable of operation.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-18. Interest rate determination. The interest rate on a loan will be determined by the department with consultation from the financial agent and must be based on the combined costs related to the total financial state revolving fund loan package. The interest rates on individual loans may vary, however, the rate will not exceed the interest rate generally available for a comparable financing at the time the rate is established.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-19. Amount of financial assistance. A political subdivision may apply for any amount of financial assistance. The department may award less than the amount requested in the application. In determining the financial assistance for each political subdivision, the department may consider the proposed construction and the proposed project costs of such activities, the resources available to the department within the state revolving fund, and the ability to carry out the proposed project, including the ability to repay the financial assistance.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-20. Files and records. All files and records pertaining to the project must be maintained by the political subdivision throughout the project and made accessible to the department and the environmental protection agency and their agents according to state and federal law. These files and records must be retained by the political subdivision for at least three years beyond the term of the loan.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01

33-35-01-21. Reservation of rights.

1. Nothing in this chapter prohibits a political subdivision from requiring more assurances, guarantees, indemnity, or other contractual requirements from any party performing project work.

2. Nothing in this chapter affects the department's right to take remedial action, including, but not limited to, administrative enforcement action and actions for breach of contract against a political subdivision that fails to carry out its obligations under this chapter. Any remedial action contemplated by the department or its financial agent will be coordinated with the best interests of the state revolving fund.

3. Review or approval of facility plans, design drawings and specifications, or other documents by or for the department, does not relieve the political subdivision of its responsibility to properly plan, design, build, and effectively operate and maintain the treatment works as required by state or federal law, permits, the loan agreement, and good management practices. The department is not responsible for increased costs resulting from defects in the

plans, design drawings and specifications, or other subagreement documents.

History: Effective June 1, 1990.
General Authority: NDCC 61-28.2-01
Law Implemented: NDCC 61-28.2-01