

## CHAPTER 69-05.2-16

### PERFORMANCE STANDARDS - HYDROLOGIC BALANCE - GENERAL REQUIREMENTS

#### Section

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#### **69-05.2-16-01. Performance standards - Hydrologic balance - General requirements.**

1. The operator shall conduct surface coal mining and reclamation operations to:
  - a. Minimize disturbance of the hydrologic balance within the permit and adjacent areas and prevent material damage outside the permit area.
  - b. Minimize changes in water quality and quantity, in the depth to ground water, and in the location of surface water drainage channels so that the approved postmining land use of the permit area is not adversely affected.
  - c. Minimize water pollution and, where necessary, use treatment methods to control water pollution.
    - (1) Emphasize mining and reclamation practices that prevent or minimize water pollution. The operator shall use changes in drainage flow in preference to water treatment facilities.
    - (2) Acceptable practices to control and minimize water pollution include:
      - (a) Stabilizing disturbed areas through land shaping.
      - (b) Diverting runoff.

- (c) Achieving quickly germinating and growing stands of temporary vegetation.
  - (d) Regulating channel velocity.
  - (e) Lining drainage channels with rock or vegetation.
  - (f) Mulching.
  - (g) Selectively placing and sealing toxic-forming materials.
  - (h) Selectively placing waste materials in backfill areas.
- (3) If the practices listed in paragraph 2 are not adequate, the operator shall operate and maintain the necessary water treatment facilities for as long as treatment is required.
2. Coal exploration activities which substantially disturb the land surface as determined by the state geologist under section 43-02-01-20 must comply with all applicable provisions of this chapter.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

**69-05.2-16-02. Performance standards - Hydrologic balance - Compliance with department of environmental quality standards.**

Runoff water and pit water discharge must meet the water quality requirements of the North Dakota department of environmental quality, as well as those of this article. The commission will not issue or revise a mining permit until the department of environmental quality has had an opportunity to review the applicable information and plans. No rights under the mining permit shall be exercised until the necessary department of environmental quality permits are obtained.

**History:** Effective August 1, 1980; amended effective May 1, 1990; June 1, 1997.

**General Authority:** NDCC 38-14.1-03, 38-14.1-42

**Law Implemented:** NDCC 38-14.1-21, 38-14.1-42

**69-05.2-16-03. Performance standards - Hydrologic balance - Compliance with the requirements of the state engineer and water resource district.**

Any water impoundment, diversion, structure, or drainage ditch built as part of an approved mining and reclamation plan must be constructed to meet the requirements of the North Dakota state engineer and the appropriate water resource district, as well as those of this article. The commission will not issue or revise a mining permit until the state engineer and the water resource district have had an opportunity to review the applicable information and plans. No rights under the mining permit shall be exercised until the necessary state engineer and water resource district permits are obtained.

**History:** Effective August 1, 1980; amended effective May 1, 1990; May 1, 1992.

**General Authority:** NDCC 38-14.1-03, 38-14.1-42

**Law Implemented:** NDCC 38-14.1-24, 38-14.1-42

**69-05.2-16-04. Performance standards - Hydrologic balance - Water quality standards and effluent limitations.**

1. The operator must comply with the following requirements:

- a. All surface drainage from the disturbed area, including disturbed areas that have been graded, seeded, or planted, must be passed through a sedimentation pond, a series of sedimentation ponds, or other sediment control measures before leaving the permit area.
  - b. Sedimentation ponds and other sediment control measures must be maintained until removal is authorized by the commission and the disturbed area has been stabilized and revegetated. The ponds or other sediment control measures may not be removed sooner than two years after the last augmented seeding unless the last augmented seeding is a supplemental seeding into an established vegetation stand that is effectively controlling erosion.
  - c. The commission may allow the use of other sediment control measures for primary sediment control if:
    - (1) The disturbed drainage area within the total disturbed area is small, the disturbed areas have been regraded, respread with topsoil, and stabilized against erosion, or the department of environmental quality has approved the use of best management practices as the effluent limitation; and
    - (2) The permittee or operator demonstrates that sedimentation ponds are not necessary for drainage from the disturbed drainage areas to meet the effluent limitations referenced in subdivision g and the applicable state water quality standards for downstream receiving waters.
  - d. For the purposes of this chapter only, "disturbed area" shall not include areas in which only diversion ditches, sedimentation ponds, or roads are installed in accordance with this article and the upstream area is not otherwise disturbed by the operator.
  - e. Sedimentation ponds and other sediment control measures must be constructed and installed according to the plans in the approved permit before beginning surface mining activities in the drainage area to be affected.
  - f. Mixed drainage from disturbed and undisturbed land must meet effluent limitations before it leaves the permit area.
  - g. Discharges of water from areas disturbed by surface mining activities must comply with all applicable state laws and rules and with the department of environmental quality effluent limitations authorized by North Dakota Century Code chapter 61-28.
  - h. For the purposes of this chapter, "other sediment control measures" means the use of the best technology currently available to meet applicable effluent limitations and, to the extent possible, minimize erosion and prevent additional contributions of sediment to streamflow or to runoff outside the permit area. These include sumps, check dams, berms, silt fences, bale dikes, sediment filters, riprap, mulches, and other measures to reduce runoff, trap sediment, or treat runoff water.
2. Adequate facilities must be installed, operated, and maintained to treat any water discharged from the disturbed area so that it complies with all state laws and rules and the effluent limitations of this section.

**History:** Effective August 1, 1980; amended effective September 1, 1984; January 1, 1987; May 1, 1990; January 1, 1993; June 1, 1997; March 1, 2004.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

**69-05.2-16-05. Performance standards - Hydrologic balance - Surface water monitoring.**

1. Surface water monitoring must be conducted in accordance with the monitoring program and based on the probable hydrologic consequences determination submitted under section 69-05.2-08-04. The commission will approve the nature of data that relate to the hydrologic reclamation plan in section 69-05.2-09-12, frequency of collection, and determine reporting requirements.
  - a. For locations in surface water bodies, such as streams, lakes, and impoundments, monitoring must:
    - (1) Be adequate to measure accurately and record quantity and quality of discharges from the permit area and identify the extent to which mining affects water quality and quantity in the adjacent area. Water samples taken from all monitoring sites must be analyzed for the parameters specified in subdivision b of subsection 3 of section 69-05.2-08-07. Results must be submitted quarterly to the commission.
    - (2) Be conducted to assure reliable test data according to existing standard procedures and analytical methods.
  - b. For point source discharges, monitoring must:
    - (1) Be conducted according to department of environmental quality standards.
    - (2) Result in notifying the commission within five days in any cases in which analytical results of the sample collections indicate noncompliance with a permit condition or applicable standard. Where a North Dakota pollutant discharge elimination system permit effluent limitation noncompliance has occurred, the operator or permittee shall forward the analytical results concurrently with the written notice of noncompliance.
    - (3) Result in periodic reports to the commission. The operator or permittee shall submit to the commission a copy of the completed North Dakota pollutant discharge elimination system report form along with analytical results from each sample taken during the reporting period. The reports must be filed on the same time schedule as that required by the North Dakota pollutant discharge elimination system permit. Any sample results that indicate a permit violation must be reported to the commission as specified in paragraph 2.
2. If violation of a permit condition occurs, the operator shall, if appropriate, immediately take the actions provided for in subdivision a of subsection 3 of section 69-05.2-10-05 and subsection 2 of section 69-05.2-09-12.
3. After disturbed areas have been regraded and stabilized, the permittee shall continue to monitor surface water flow and quality within the permit and adjacent areas. Data from this monitoring may be used to demonstrate that the quality and quantity of runoff without treatment is consistent with the requirements to minimize disturbance to the prevailing hydrologic balance and attain the approved postmining land use. These data may also provide a basis for commission approval to remove water quality or flow control systems.
4. Equipment, structures, and other devices necessary to measure and sample accurately the quality and quantity of surface water discharges from the disturbed area must be properly installed, maintained, and operated and must be removed when no longer required.

**History:** Effective August 1, 1980; amended effective May 1, 1990; June 1, 1997; May 1, 2001; March 1, 2004.

**General Authority:** NDCC 38-14.1-03

**69-05.2-16-06. Performance standards - Hydrologic balance - Diversion of overland flow.**

Overland flow, including flow through litter, shallow ground water flow from undisturbed areas, and flow in ephemeral streams, may be diverted from disturbed areas by temporary or permanent diversions, if required or approved by the commission. The following requirements must be met for diversions and collection drains used to transport water into treatment facilities and for diversions of overland and shallow ground water flow and ephemeral streams:

1. Temporary diversions must be constructed to pass safely the peak runoff from a ten-year, twenty-four-hour precipitation event, or a larger event as specified by the commission. A two-year recurrence interval may be used for designing collection drains used to transport water into treatment facilities if:
  - a. The diversion will be used for less than one year; or
  - b. The commission determines that the design integrity of the water management plan is maintained during a ten-year, twenty-four-hour design storm.
2. Permanent diversions must be constructed to pass safely the peak runoff from a ten-year, twenty-four-hour precipitation event; however, where necessary to protect fills and property and to avoid danger to public health and safety, permanent diversions must be constructed to pass safely the peak runoff from a one-hundred year, twenty-four-hour precipitation event, or a larger event as specified by the commission. Permanent diversions must be constructed with gently sloping banks stabilized by vegetation. Asphalt, concrete, or other similar linings may be used only when approved by the commission to prevent seepage or to provide stability.
3. Diversions must be designed, constructed, and maintained to prevent additional contributions of suspended solids to streamflow and to runoff outside the permit area to the extent possible using the best technology currently available. Appropriate sediment control measures for these diversions may include maintenance of appropriate gradients, channel lining, revegetation, roughness structures, and detention basins.
4. No diversion shall be located to increase the potential for landslides. No diversion shall be constructed on existing landslides, unless approved by the commission.
5. When no longer needed, each temporary diversion must be removed and the affected land reclaimed. The operator shall reestablish ephemeral stream channels to a longitudinal profile and cross section that approximate premining channel characteristics.
6. Diversion design must incorporate the following:
  - a. Design channel lining using standard engineering practices to pass safely the design velocities.
  - b. Freeboard must be no less than three-tenths of a foot [9.14 centimeters]. Design freeboard may be increased where the area protected is a critical area as determined by the commission.
  - c. Protection for transition of flows and for critical areas such as swales and curves.
  - d. Install energy dissipators when necessary at discharge points, where diversions intersect with natural streams and exit velocity of the diversion ditch flow is greater than that of the receiving stream.

- e. Dispose of excess excavated material not necessary for diversion channel geometry or channel regrading according to chapter 69-05.2-18.
  - f. Handle suitable plant growth material in compliance with chapter 69-05.2-15.
7. Diversions may not be constructed or operated to divert water into underground mines or an abandoned surface mine without commission approval under section 69-05.2-16-18.

**History:** Effective August 1, 1980; amended effective May 1, 1990; January 1, 1993.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

**69-05.2-16-07. Performance standards - Hydrologic balance - Stream channel diversions.**

1. Flow from perennial and intermittent streams within the permit area may be diverted, if the diversions:
  - a. Are approved by the commission after making the findings in section 69-05.2-16-20;
  - b. Comply with other requirements of this chapter;
  - c. Comply with local and state laws and regulations; and
  - d. Are certified by a qualified registered professional engineer as being designed and constructed as required by this section.
2. When streamflow diversion is allowed, the diversion must be designed, constructed, and removed as follows:
  - a. The longitudinal profile of the stream, the channel, and the floodplain must be designed and constructed to remain stable and to prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow or to runoff outside the permit area. These contributions may not exceed the limits established by state law. Erosion control structures such as channel lining structures, retention basins, and artificial channel roughness structures may be used in diversions only when approved by the commission. These structures may be approved for permanent diversions only where they are stable and will require infrequent maintenance.
  - b. The combination of channel, bank, and floodplain configurations must be adequate to pass safely the peak runoff of a ten-year, twenty-four-hour precipitation event for temporary diversions, a one-hundred-year, twenty-four-hour precipitation event for permanent diversions, or larger events specified by the commission. However, the capacity of the channel itself should be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream of the diversion.
3. When no longer needed, all temporary stream channel diversions must be removed and the affected land reclaimed. At the time diversions are removed, downstream water treatment facilities previously protected by the diversion must be modified or removed to prevent overtopping or failure of the facilities. This requirement does not relieve the operator from maintaining a water treatment facility otherwise required under this chapter or the permit.
4. When permanent diversions are constructed or natural stream channels restored after being temporarily diverted, the operator shall:
  - a. Restore, enhance where practicable, or maintain natural riparian vegetation on the banks of the stream.

- b. Establish or restore the stream to its natural meandering shape at an environmentally acceptable gradient, as approved by the commission.
- c. Establish or restore the stream to a longitudinal profile and cross section, including aquatic habitats (usually a pattern of riffles, pools, and drops rather than uniform depth) that approximate premining stream channel characteristics.

**History:** Effective August 1, 1980; amended effective May 1, 1990; May 1, 1992.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24, 38-14.1-42

**69-05.2-16-08. Performance standards - Hydrologic balance - Sediment control measures.**

1. Appropriate sediment control measures must be designed, constructed, and maintained using the best technology currently available to:
  - a. Prevent, to the extent possible, additional contributions of sediment to streamflow or to runoff outside the permit area.
  - b. Meet the more stringent of applicable state effluent limitations.
  - c. Minimize erosion to the extent possible.
  - d. Minimize the deposition of sediment on undisturbed areas.
2. Sediment control measures include practices carried out within and adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed area must reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include:
  - a. Disturbing the smallest practicable area at any one time during the mining operation through progressive backfilling, grading, and prompt revegetation.
  - b. Stabilizing the backfill material to promote a reduction in the rate and volume of runoff.
  - c. Retaining sediment within disturbed areas.
  - d. Diverting runoff away from disturbed areas.
  - e. Diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion.
  - f. Using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds, and other measures that reduce overland flow velocity, reduce runoff volume, or trap sediment.
  - g. Treating with chemicals.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

**69-05.2-16-09. Performance standards - Hydrologic balance - Sedimentation ponds.**

1. General requirements. Sedimentation ponds must be used individually or in series and:

- a. Be constructed before any disturbance of the undisturbed area to be drained into the pond.
  - b. Be located as near as possible to the disturbed area and out of perennial streams, unless approved by the commission.
  - c. Meet all the criteria of this section.
2. Sediment storage volume. Sedimentation ponds must provide adequate sediment storage volume. Sediment storage volume must be determined using the universal soil loss equation, gully erosion rates, and the sediment delivery ratio converted to sediment volume, using either the sediment density or other empirical methods derived from regional sediment pond studies if approved by the commission.
3. Detention time. Sedimentation ponds must provide the required theoretical detention time for the water inflow or runoff entering the pond from a ten-year, twenty-four-hour precipitation event (design event). The theoretical detention time must be sufficient to achieve and maintain applicable effluent standards. The calculated theoretical detention time and all supporting materials must be included in the permit application.
4. Dewatering. The stored water must be removed by a nonclogging dewatering device or a conduit spillway approved by the commission, and have a discharge rate to achieve and maintain the required theoretical detention time. The dewatering device may not be lower than the maximum elevation of the sediment storage volume.
5. Each operator shall design, construct, and maintain sedimentation ponds to prevent short circuiting to the extent possible.
6. The design, construction, and maintenance of a sedimentation pond or other sediment control measures do not relieve the operator from compliance with applicable effluent limitations.
7. For sedimentation ponds designed to contain the runoff from a ten-year, twenty-four-hour precipitation event (design event), there must be no spillway outflow as a result of runoff from the design event or lesser runoff events, unless multiple runoff events occur before the pond can be dewatered in accordance with approved plans in the permit.
8. Sediment must be removed from sedimentation ponds on a periodic basis in order to maintain an adequate storage volume for the design event.
9. An appropriate combination of principal and emergency spillways or a single spillway must be provided to safely discharge the runoff from a twenty-five-year, six-hour precipitation event for a temporary impoundment, a fifty-year, six-hour precipitation event for a permanent impoundment, or a larger event specified by the commission. The spillways must be capable of safely discharging the required event when the impoundment is at high water elevation. Commission approval of open channel spillway grades and allowable velocities must be obtained and velocities must be nonerosive. Earth or grass lined spillways may be used only where sustained flows are not expected.
10. The minimum elevation at the top of the settled embankment must be one foot [30.48 centimeters] above the water surface in the pond with the emergency spillway flowing at design depth. For embankments subject to settlement, this minimum elevation requirement applies at all times.
11. The constructed height of the dam must be increased a minimum of five percent over the design height to allow for settlement, unless it has been demonstrated to the commission that the material used and the design will ensure against settlement.

12. The minimum top width of the embankment may not be less than the quotient of  $(H+35)/5$ , where H is the height, in feet, or  $(H+10.7)/5$ , where H is the height, in meters, of the embankment as measured from the upstream toe of the embankment.
13. The upstream side slope of the settled embankment may not be steeper than a horizontal to vertical ratio of 3:1 and the downstream side slope of the settled embankment may not be steeper than a horizontal to vertical ratio of 2:1.
14. The foundation area must be cleared of all organic matter, all surfaces sloped to no steeper than a horizontal to vertical ratio of 1:1, and the entire foundation surface scarified. Cutoff trenches must be installed if necessary to ensure stability.
15. The fill material must be free of sod, large roots, other large pieces of vegetative matter, and frozen soil, and in no case shall coal processing waste be used.
16. The placing and spreading of fill material must be started at the lowest point of the foundation. The fill must be brought up in horizontal layers in the thicknesses required to facilitate compaction and meet the design requirements of this section. Fill adjacent to structures, pipe conduits, and drainfill or antiseep collars must be compacted to a density equal to that of the surrounding fill by hand tamping or by using manually directed power tampers or plate vibrators. Compaction must be conducted as specified in the approved design. In lieu of the specific design requirements of this subsection and subsections 11 through 14, the operator may demonstrate that the design of the structure has a minimum static safety factor of 1.3 for a normal pool with steady state seepage saturation conditions.
17. If a proposed impoundment can meet the size and other criteria of 30 CFR 77.216, the following additional requirements must be met:
  - a. An appropriate combination of principal and emergency spillways must be provided to safely discharge the runoff from a one-hundred-year, six-hour precipitation event, or a larger event as specified by the commission.
  - b. The embankment must be designed and constructed with a seismic safety factor of 1.2 and a static safety factor of at least 1.5 for a normal pool with steady state seepage saturation conditions, or a higher safety factor as designated by the commission.
  - c. Appropriate barriers must be provided to control seepage along conduits that extend through the embankment.
  - d. The criteria of the mine safety and health administration as published in 30 CFR 77.216 must be met.
18. If an impoundment meets the class B or C criteria for dams (those located where failure would be expected to cause loss of life or serious property damage) in the United States department of agriculture, natural resource conservation service technical release no. 60 (TR-60), Earth Dams and Reservoirs, 1985, the following apply:
  - a. The emergency spillway must comply with freeboard hydrograph criteria found in the minimum emergency spillway hydrologic criteria table in TR-60, or greater event specified by the commission.
  - b. The embankment must be designed and constructed with a seismic safety factor of 1.2 and a static safety factor of at least 1.5 for a normal pool with steady state seepage saturation conditions, or a higher safety factor as designated by the commission.
  - c. Foundation testing, as well as any necessary laboratory testing of foundation material, must be performed to determine design requirements for foundation stability.

- d. Appropriate barriers must be provided to control seepage along conduits that extend through the embankment.
19. Impoundment inspections.
- a. A registered professional engineer, or other specialist under the direction of a registered professional engineer, shall inspect each impoundment as required under subdivisions b, c, and d. The registered professional engineer and specialist must be experienced in the construction of impoundments.
  - b. Inspections must be made regularly during construction. Reports for each inspection during construction must be prepared and maintained at or near the minesite.
  - c. After impoundment construction is complete, the registered professional engineer shall promptly provide the commission a certified report that the impoundment has been inspected during construction on a regular basis and it has been constructed as designed and according to the approved plan and this chapter. The report must include a summary of the construction inspections, final storage capacity, and if applicable, a discussion of any deviations from the approved plan.
  - d. After impoundments are operational, they shall be inspected at least yearly until removal of the structure or release of the performance bond. A registered professional engineer shall promptly provide the commission with an annual impoundment inspection report addressing any appearance of instability, structural weakness, or other hazardous conditions, depth and elevation of any impounded water, existing storage capacity, any existing or required monitoring procedures and instrumentation, and any other aspects of the structure affecting stability. A single report can address more than one impoundment; however, the condition of each impoundment must be noted separately.
  - e. A copy of the inspection reports must be maintained at or near the minesite.
20. The embankment, including the surrounding areas and diversion ditches disturbed or created by construction, must be stabilized with respect to erosion and sudden drawdown by a vegetative cover or other means immediately after the embankment is completed. The active upstream face where water will be impounded may be riprapped or otherwise stabilized to protect the embankment from erosion and sudden drawdown. Areas where the reestablishment of vegetation is not successful or where rills and gullies develop must be repaired and revegetated according to section 69-05.2-15-06.
21. In addition to the requirements of subsection 19, all impoundments meeting the criteria of subsections 17 and 18 must be examined according to 30 CFR 77.216-3. Other impoundments must be examined at least quarterly by a qualified person for appearance of erosion, structural weakness, and other hazardous conditions. The annual inspection required by subsection 19 will be considered one of the examinations required by this subsection.
22. Plans for any enlargement, reduction, reconstruction, or other modification of dams or impoundments must be submitted to the commission. Commission approval of these plans is required before modification begins, unless a modification is necessary to eliminate a hazard to public health, safety, or the environment.
23. Sedimentation ponds or other sediment control measures may not be removed until authorized by the commission and the disturbed area has been stabilized and revegetated. The ponds or other measures may not be removed sooner than two years after the last augmented seeding unless the last augmented seeding is a supplemental seeding into an established vegetation stand that is effectively controlling erosion. When the pond is removed, the affected land must be reclaimed, unless the pond has been approved by the commission

for retention. If the commission approves retention, the pond must meet all the requirements for permanent impoundments of section 69-05.2-16-12.

**History:** Effective August 1, 1980; amended effective June 1, 1983; June 1, 1986; January 1, 1987; May 1, 1990; May 1, 1992; June 1, 1994; July 1, 1995; May 1, 1999; March 1, 2004; April 1, 2007.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-10. Performance standards - Hydrologic balance - Discharge structures.**

Discharges from sedimentation ponds, permanent and temporary impoundments, coal processing waste dams and embankments, and diversions must be controlled, where necessary using energy dissipators, riprap channels, surge ponds, and other devices to reduce erosion, prevent deepening or enlargement of stream channels and minimize disturbances to the hydrologic balance. Discharge structures must be designed according to standard engineering design procedures.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-11. Performance standards - Hydrologic balance - Toxic mine drainage.**

The discharge of toxic mine drainage into ground and surface water must be avoided by:

1. Identifying, burying, and treating where necessary, spoil which, in the judgment of the commission, may be detrimental to vegetation or water quality.
2. Preventing water from coming into contact with spoil material that causes toxic mine drainage according to section 69-05.2-21-03 and other measures as required by the commission.
3. Burying or otherwise treating all spoil that causes toxic mine drainage within thirty days after it is first exposed, or within a lesser period required by the commission, except that temporary storage may be approved upon a finding that burial or treatment within thirty days is not feasible and will not result in any material risk of water pollution or other environmental damage. Storage must be limited to the period until burial or treatment first becomes feasible. The spoil must be placed on impermeable material and protected from erosion and contact with surface water.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-12. Performance standards - Hydrologic balance - Permanent and temporary impoundments.**

1. In addition to the standards for permanent impoundments in subsection 7 of North Dakota Century Code section 38-14.1-24, the design, construction, and maintenance of structures in which water is impounded by a dam must utilize the best technology currently available and meet the requirements of subsections 9 through 21 of section 69-05.2-16-09 and the North Dakota Dam Design Handbook.
2. Temporary impoundments in which the water is impounded by a dam must meet the requirements of subsections 9 through 22 of section 69-05.2-16-09.
3. Excavations that will impound water during or after the mining operation must have stable perimeter slopes not steeper than 1v:2h. Slopes must be designed to be stable, even if flatter

side slopes are required. Where surface runoff enters the impoundment area, the side slope must be protected against erosion.

4. All dams and embankments must be routinely maintained during mining operations. Vegetative growth must be cut where necessary to facilitate inspection and repairs. Ditches and spillways must be cleaned. Any combustible material present on the surface, other than material such as mulch or dry vegetation used for surface stability, must be removed and all other appropriate maintenance procedures followed.
5. If any examination or inspection discloses a potential hazard, the operator shall promptly inform the commission of the findings and the emergency procedures for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the commission must be notified immediately. The commission will then notify the appropriate agencies that other emergency procedures are required to protect the public.

**History:** Effective August 1, 1980; amended effective May 1, 1990; May 1, 1992; January 1, 1993.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-13. Performance standards - Hydrologic balance - Ground water protection.**

1. Backfilled materials must be placed to minimize contamination of ground water systems with toxic or otherwise harmful mine drainage, minimize adverse effects on ground water flow and quality, minimize offsite effects, and support approved postmining land uses.
2. To control the effects of mine drainage, pits, cuts, and other mine excavations or disturbances must be located, designed, constructed, and utilized to prevent or control discharge of toxic or otherwise harmful mine drainage waters into ground water systems and prevent adverse impacts on those systems or on approved postmining land uses.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-14. Performance standards - Hydrologic balance - Ground water monitoring.**

1. The ground water monitoring plan must be based on the probable hydrologic consequences determination and conducted according to the monitoring program submitted under section 69-05.2-09-12 and approved by the commission. Ground water levels, infiltration rates, subsurface flow and storage characteristics, and the quality of ground water must be monitored to determine the effects of surface mining activities on the recharge capacity of reclaimed lands and on the quantity and quality of water in ground water systems in the permit area and adjacent area. Ground water monitoring systems must be designed and maintained to allow the commission to substantiate the determination of cumulative impacts of all surface mining activities on the ground water hydrology of the permit and adjacent areas.
2. When surface mining activities may affect the ground water systems which serve as aquifers that ensure the hydrologic balance of water use on or off the mine area, ground water levels and ground water quality must be periodically monitored. Monitoring must include measurements from a sufficient number of wells and mineralogical and chemical analyses of aquifer, overburden, and spoil that are adequate to reflect changes in ground water quantity and quality resulting from those activities. Monitoring must be adequate to plan for modification of surface mining activities, if necessary, to minimize disturbance of the prevailing hydrologic balance.
3. Ground water monitoring data must be submitted to the commission every three months or more frequently as prescribed by the commission. Monitoring reports must include analytical

results from each sample taken during the reporting period. The operator shall review the data annually or more frequently if required by the commission. Changes observed in the monitored aquifers in the permit or adjacent areas must be described and interpreted in the monitoring report as to their significance and possible effect on any water supplies. When the analysis of any ground water sample indicates noncompliance with the permit conditions, the operator shall promptly notify the commission and immediately take the actions provided for in subdivision a of subsection 3 of section 69-05.2-10-05 and subsection 2 of section 69-05.2-09-12.

4. As specified and approved by the commission, the operator or permittee shall conduct additional hydrologic tests, including drilling, infiltration tests, and aquifer tests, and submit the results to the commission to demonstrate compliance with this chapter.

**History:** Effective August 1, 1980; amended effective June 1, 1983; May 1, 1990; May 1, 1992.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24, 38-14.1-27

**69-05.2-16-15. Performance standards - Hydrologic balance - Protection of ground water recharge capacity.**

Surface mining activities must restore approximate premining recharge capacity, through restoration of the capability of the reclaimed areas as a whole, excluding coal processing waste and underground development waste disposal areas and fills, to a condition which:

1. Supports the approved postmining land use;
2. Minimizes disturbances to the prevailing hydrologic balance in the mine plan area and in adjacent areas; and
3. Provides a rate of recharge that approximates the premining recharge rate.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24, 38-14.1-27

**69-05.2-16-16. Performance standards - Hydrologic balance - Transfer of wells.**

1. An exploratory or monitoring well may be transferred by the permittee for further use as a water well with the prior approval of the commission. The permittee and the surface owner shall jointly submit a written request to the commission for that approval.
2. Upon an approved transfer of a well, the transferee shall:
  - a. Assume primary liability for damages to persons or property from the well.
  - b. Plug the well when necessary, but in no case later than abandonment of the well.
  - c. Assume primary responsibility for compliance with chapter 69-05.2-14 with respect to the well.
3. Upon an approved transfer of a well, the transferor shall be secondarily liable for the transferee's obligations under subsection 2, until release of the bond or other equivalent guarantee required by chapter 69-05.2-12, for the area in which the well is located.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-17. Performance standards - Hydrologic balance - Water rights and replacement.**

A permittee shall replace the water supply of an owner of interest in real property who obtains all or part of the owner's supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source, where the water supply has been affected by contamination, diminution, or interruption proximately resulting from the surface mining activities.

**History:** Effective August 1, 1980.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-18. Performance standards - Hydrologic balance - Discharge of waters into an underground mine.**

Surface water must not be diverted or otherwise discharged into underground mine workings or abandoned surface mines, unless the operator or permittee demonstrates to the commission that the diversion or discharge will:

1. Minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area, and otherwise eliminate public hazards resulting from surface mining activities.
2. Not cause the discharge to result in or contribute to a violation of applicable water quality standards or effluent limitations.

**History:** Effective August 1, 1980; amended effective May 1, 1990.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-19. Performance standards - Hydrologic balance - Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities.**

Before abandoning the permit area, the operator shall renovate all permanent sedimentation ponds, diversions, impoundments, and treatment facilities to meet criteria specified in the detailed design plan for the permanent structures and impoundments.

**History:** Effective August 1, 1980.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24

#### **69-05.2-16-20. Performance standards - Hydrologic balance - Stream buffer zones.**

1. The operator may not disturb land within one hundred feet [30.48 meters] of an intermittent or perennial stream unless the commission, after consulting the state engineer and the department of environmental quality, specifically authorizes surface mining activities closer to, or through, the stream, after finding that:
  - a. Surface mining activities will not cause or contribute to the violation of applicable state or federal water quality standards, and will not adversely affect the water quantity and quality or other environmental resources of the stream; and
  - b. If there will be a temporary or permanent stream channel diversion, it will comply with section 69-05.2-16-07.
2. Areas not to be disturbed must be designated buffer zones and marked according to section 69-05.2-13-04.

**History:** Effective August 1, 1980; amended effective May 1, 1990; May 1, 1992.

**General Authority:** NDCC 38-14.1-03

**Law Implemented:** NDCC 38-14.1-24