Chapter NR 182

NONFERROUS METALLIC MINERAL MINING WASTE MANAGEMENT

Note: Chapter NR 182 as it existed on December 31, 2021, was repealed and a new chapter NR 182 was created effective January 1, 2022.

NR 182.101 Purpose. The purpose of this chapter is to regulate the location, design, construction, operation, maintenance, closure, and long-term care of the sites and facilities for the storage and disposal of nonferrous metallic mining and prospecting wastes and to coordinate the review, approval and oversight of such sites with the permitting and oversight processes specified in chs. NR 131 and 132 and chs. 289 and 293, Stats.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction made under s. 35.17, Stats., Register December 2021 No. 792.

NR 182.102 Applicability. (1) This chapter governs sites and facilities used for storage and disposal of nonferrous metallic mining waste, as defined in this chapter which are part of a nonferrous metallic mineral mining or prospecting operation as defined in s. 293.01 (9) and (18), Stats.

(2) This chapter establishes specific groundwater quality protection standards and procedures that are applicable to all facilities regulated under this chapter and to other facilities constructed as part of nonferrous metallic mining or prospecting operations permitted under ch. NR 131 or 132.

(3) To the extent that nonferrous metallic prospecting or mining wastes are identified by the department as hazardous under s. 291.05 (1), Stats., the department shall regulate the disposal of such wastes under this chapter, and not under chs. NR 660 to 670, subject to amendment, if necessary, to comply with applicable federal regulations or otherwise to adequately protect the environment.

(4) An operator shall maintain sites and facilities utilized for the storage, transportation, treatment, and disposal of non-mining solid wastes generated as part of nonferrous metallic mining operation, not covered by the definition of mining waste, in compliance with the provisions of chs. NR 500 to 544 and NR 660 to 670, as applicable.

(5) The provisions of this chapter are not applicable to the design, construction, or operation of industrial wastewater facilities, sewerage systems, and waterworks treating liquid waste approved under s. 281.41, Stats., or permitted under ch. 283, Stats., nor to sites used solely for the disposal of liquid industrial wastes which have been approved under s. 281.41, Stats., or permitted under ch. 283, Stats.

(6) To the extent mining wastes are used in the reclamation or construction of other facilities and structures on mining or prospecting sites, other than the waste facility itself, or for backfilling an underground mine or a prospecting excavation, the facilities where such waste are placed shall be exempt from the requirements of ch. 289, Stats., and this chapter but shall comply with the review and approval requirements of ch. 293, Stats., and ch. NR 131 or 132. Facilities used to store mining waste prior to being used for construction or reclamation or as backfill for an underground mine or prospecting excavation shall comply with this chapter.

(7) Surface mines that are backfilled with mining waste shall be subject to the requirements of this chapter except for ss. NR 182.105 and 182.106. For surface mines that are backfilled with mining waste, the mine pit and any land or appurtenances used for the storage of mining waste prior to its use as backfill shall be considered a single waste site. Facilities used to store mining waste prior to its being used as backfill for a surface mine shall comply with this chapter.

(8) An underground mine or a prospecting excavation which is backfilled with nonferrous mining waste in accordance with a prospecting permit or a mining permit issued under ch. NR 131 or 132 is not a waste site subject to regulation under this chapter.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (4) made under s. 13.92 (4) (b) 7., Stats., Register December 2021 No. 792.

NR 182.103 Definitions. In this chapter:

(1) "Active dam" means a dam and associated settling area into which tailings or wastewater, or both, are being introduced for purposes of clarification or that has not been reclaimed in an approved manner.

(2) "Active facility life" means the period of operation beginning with the initial receipt of mining waste at a facility until the facility ceases to accept waste and has completed all closure and reclamation activities in accordance with this chapter, chs. NR 131 and 132, and any applicable plan approvals and permits.

(3) "Alternative concentration limit" has the meaning specified in s. NR 140.05 (1m).

(4) "Applicant" means a person who has submitted a feasibility report or plan of operation or applied for a waste facility license under this chapter.

(5) "Aquifer" means a geologic formation, group of formations, or part of a formation that is saturated with water and can store and transmit water, such as to a well or a spring, in quantities sufficient to constitute a usable supply.

(6) "Asbestos" means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, and actinolite-tremolite.

(7) "Background concentration" or "background water quality" means surface water or groundwater quality at or near a facility, practice or activity which has not been affected by that facil-

ity, practice or activity, established by monitoring at the proposed site, upgradient and downgradient of the proposed site and at representative reference sites, as necessary.

(8) "Baseline concentration" or "baseline water quality" means the concentration of a substance in groundwater or surface water as determined by monitoring at or near a proposed facility, practice, or activity before the facility has been constructed or the practice or activity has commenced.

(9) "Closure" means those actions to be taken by the owner or operator of a mining waste site or facility to prepare the site for long-term care and to make it suitable for other uses.

(10) "Closure plan" means a written report and supplemental engineering plans detailing those actions that will be taken by the owner or operator to effect proper closure of a nonferrous mining waste facility.

(11) "Closing" means the time at which a nonferrous mining waste site or facility ceases to accept wastes, and includes those actions taken by the owner or operator of the facility to prepare the site for long-term care and make it suitable for other uses.

(12) "Completeness" means a determination by the department that the minimum submittal requirements as established by this chapter for a plan or report have been met.

(12m) "Composite liner" or "composite capping system" means a liner or capping system consisting of 2 low permeability components installed in direct and uniform contact, with the upper component consisting of a geomembrane material and the lower component consisting of compacted low permeability soils or compacted fine-grained soils combined with a geosynthetic clay liner.

(13) "Construct" means to engage in construction and closure activities for a new or expanded mining waste facility including any of the following:

(a) Clearing and grading.

(b) Preparation and construction of facility base grade, leachate collection systems, liner systems, and final cover systems.

(c) Building of new structures.

(d) Replacement, expansion, remodeling, alteration, or extension of existing structures.

(e) Acquisition and installation of equipment associated with new, expanded, or remodeled structures.

(14) "Construction documentation report" means a written report submitted under the seal of a licensed professional engineer documenting that a nonferrous mining waste disposal site or facility has been constructed in substantial compliance with a department approved plan of operation and this chapter.

(15) "Department" means the department of natural resources.

(16) "Depth of useable groundwater" means the depth into the Precambrian bedrock, as determined by the department, below which the groundwater is not reasonably capable of being used or made suitable for human consumption and is not hydrologically connected to other sources of groundwater that are suitable for human consumption.

(17) "Design capacity" means the total volume in cubic yards of waste that can be placed in a waste site, including the volume of any daily or intermediate cover material utilized in the facility, but not including final cover or topsoil.

(18) "Design management zone" has the meaning specified in s. NR 140.05 (6).

(19) "Disposal" means the discharge, deposit, injection, dumping, or placing of any mining or prospecting waste into or on any land or water so that the mining and prospecting waste or any constituent of the waste may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

(20) "Enforcement standard" has the meaning specified in s. NR 140.05 (7).

(21) "Establish" means to bring a mining waste disposal site or facility into existence, in compliance with applicable approvals and rules of the department.

(22) "Expand an existing site or facility" means to dispose of nonferrous mining waste on land not previously licensed, to dispose of mining waste not in accordance with a department issued plan approval, if one exists, or to dispose of mining waste in a manner significantly different from past operations.

(23) "Facility" means any land or appurtenances to the land used for the storage or disposal of nonferrous mining wastes, but does not include land or appurtenances used in the production or transportation of mining wastes, such as the concentrator, haul roads, or tailings pipelines, that are permitted under ch. NR 131 or 132.

(24) "Feasibility report" means a report for a specific nonferrous mining waste disposal site or facility that describes the facility, surrounding area, and proposed operation in terms of land use, topography, soils, geology, hydrology, groundwater, surface water, proposed waste quantities and characteristics, and preliminary site or facility design concepts.

(25) "Fill area" means the area of a facility proposed to receive or that is receiving direct placement of nonferrous mining waste.

(26) "Floodplain" means land that has been, prior to January 1, 2022, or may be after January 1, 2022, as determined by the department, covered by flood water during the regional flood as defined in ch. NR 116 and includes the floodway and the flood fringe as defined in ch. NR 116.

(27) "Freeboard" means the height of the crest of the dam above the adjacent liquid surface within the impoundment.

(27g) "Geomembrane" means a highly impermeable membrane made from plastic or rubber-based material by polymerization.

(27r) "Geosynthetic clay liner" or "GCL" means factory manufactured geosynthetic product consisting of a layer of bentonite contained between geotextiles that are attached by adhesion, stitch bonding or needlepunching or a layer of bentonite attached to a geomembrane by adhesion.

(28) "Groundwater" means any waters of the state, as defined in s. 281.01 (18), Stats., occurring in a saturated subsurface geological formation of rock or soil.

(29) "Groundwater quality" means the chemical, physical, biological, thermal, or radiological quality of groundwater at a site or within an underground aquifer.

(30) "Groundwater standard" means a preventive action limit, alternative concentration limit, or enforcement standard established in accordance with ch. NR 140 and this chapter.

(31) "Inactive dam" means a dam and associated settling area that is no longer being used for disposal of wastewater or tailings, or both, and that has been reclaimed in an approved manner.

(33) "Leachate" means water or other liquid that has percolated through or contacted nonferrous mining waste materials.

(34) "Licensed professional engineer" means a professional engineer registered with or licensed by the Wisconsin department of safety and professional services.

(35) "Licensed professional geologist" means a professional

geologist registered with or licensed by the Wisconsin department of safety and professional services.

(36) "Limits of filling" means the outermost limit at which waste from a facility has been disposed of or approved or proposed for disposal.

(37) "Long-term care" has the meaning specified in s. 289.01 (21), Stats.

(38) "Merchantable by-product" has the meaning specified in s. 293.01 (7), Stats.

(39) "Mine" means an excavation at or below the earth's surface made to extract nonferrous metallic minerals.

(40) "Mining" or "mining operation" has the meaning specified in s. 293.01 (9), Stats.

(41) "Mining site" has the meaning specified in s. 293.01 (12), Stats.

(42) (a) "Mining waste" or "nonferrous mining waste" means any refuse, sludge, or other discarded material, including solid, liquid, semi-solid, or contained gaseous material, resulting from nonferrous metallic mineral prospecting or mining, or from the cleaning, preparation or concentration of nonferrous metallic minerals during prospecting or mining operations.

(b) "Mining waste" include tailings, waste rock, mine overburden, and waste treatment sludges.

(c) "Mining waste" does not include topsoil and mine overburden not disposed of in a waste site, but placed in a facility permitted under ch. NR 131 or 132, to be returned to the mine site or used in the reclamation process, and does not include merchantable by-products.

(d) "Mining waste" does not include trees and other vegetation removed from the mining site during site preparation and facility construction.

(43) "Monitoring" means all procedures used to systematically inspect and collect data on the performance of a facility relating to leachate and gas production or the effect on the quality of the air, groundwater, surface water, unsaturated zone, or soils.

(44) "Non-mining solid waste" means solid waste generated as part of a nonferrous prospecting or mining operation that is not mining waste and includes materials such as discarded vegetation, tires, barrels, sanitary waste, and various other solid waste materials defined in ch. NR 500, including construction and demolition waste, garbage, commercial solid waste and municipal solid waste.

(45) "Operator" means the person who is responsible for the overall operation of a nonferrous mining waste facility or for part of a nonferrous mining waste facility.

(46) "Ore" means a naturally occurring material from which nonferrous metallic minerals can be recovered at a profit.

(47) "Overburden" means any unconsolidated geologic material such as till, sand and gravel, or weathered bedrock that may be removed during mining.

(48) "Owner" means any person who owns a nonferrous mining waste facility or part of a nonferrous mining waste facility whether individually, jointly, or through subsidiaries, agents, employees, or contractors.

(49) "Person" means an individual, trust, firm, cooperative, institution, joint stock company, corporation, including a government corporation, partnership, association, state, municipality, commission, political subdivision of a state, interstate body, or federal or state department, agency, or instrumentality.

(50) "Plan of operation" means a report submitted for a nonferrous mining waste disposal site or facility that describes its location, design, construction, sanitation, operation, maintenance, closing, and long-term care.

(51) "Pollution" means the contaminating or rendering unclean or impure the air, land, or waters of the state, or making the same injurious to public health, harmful for commercial or recreational use, or deleterious to fish, bird, animal, or plant life.

(52) "Preventive action limit" has the meaning specified in s. NR 140.05 (17).

(53) "Proof of financial responsibility" means a deposit or other financial instrument in compliance with ss. 289.41 and 293.51 (1g), Stats., ensuring that sufficient funds will be available to comply with the closure and long-term care requirements of this chapter and the approved plan of operation.

(54) "Prospecting" has the meaning specified in s. 293.01 (18), Stats.

(55) "Reclamation plan" means the proposal for the reclamation of the nonferrous prospecting or mining site, including the closure of a mining waste disposal site or facility, that is approved by the department under s. 293.45 or 293.49, Stats., and ch. NR 131 or 132 as part of the prospecting or mining permit.

(56) "Refuse" has the meaning specified in s. 293.01 (25), Stats.

(57) "Soil" means material that has been physically and chemically derived from the bedrock by nature.

(58) "Solid waste" has the meaning specified in s. 289.01 (33), Stats.

(59) "Statistically significant change" means an amount of change determined by the use of valid statistical procedures for measuring significance at a level of 0.05.

(60) "Storage" means the temporary placement of nonferrous mining waste in such a manner as to not constitute ultimate disposal, in compliance with a mining permit or prospecting permit and plans approved under this chapter.

(61) "Tailings" means waste material resulting from the washing, concentration, chemical extraction or treatment of crushed ore.

(62) "Termination" means the final actions taken by an owner or operator of a nonferrous mining waste facility when formal responsibilities for long-term care cease.

(63) "Topsoil" means natural loam, sandy loam, silt loam, silt clay loam, or clay loam humus-bearing soils or other material that will easily produce and sustain dense growths of vegetation capable of preventing wind and water erosion of the material itself and other materials beneath.

(64) "USGS" means the United States Geological Survey.

(65) "Waste rock" means consolidated rock that has been removed during mining or prospecting but is not of sufficient value at the time of removal to constitute an ore.

(66) "Waste site" or "waste sites and facilities" means any land or appurtenances used for the storage or disposal of nonferrous mining waste, but does not include land or appurtenances used in the production or transportation of nonferrous mining waste, such as the concentrator, haul roads, or tailings pipelines, which are permitted under ch. NR 131 or 132.

(67) "Well" means any drillhole or other excavation or opening constructed for the purpose of obtaining or monitoring groundwater.

(68) "Well nest" means 2 or more wells installed within 10 feet of each other at the ground surface and constructed to varying depths.

(69) "Wetland" means an area where water is at, near, or above the land surface long enough to be capable of supporting

aquatic or hydrophytic vegetation and that has soils indicative of wet conditions.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (15), (51) made under s. 35.17, Stats., Register December 2021 No. 792.

NR 182.104 General submittal requirements. Unless otherwise specified in this chapter, all submittals for review and approval of any feasibility report, plan of operation, construction documentation report, or closure plan shall include the following:

(1) PAPER AND ELECTRONIC COPIES. Unless otherwise specified, an applicant shall submit 5 paper copies and one electronic copy of the plan or report prepared pursuant to the appropriate section of this chapter, and an additional reproducible digital or electronic copy of any plan sheets or drawings submitted as a part of the plan or report. The paper copies and electronic copies shall be submitted to the department's waste and materials management program in Madison unless otherwise specified by the department. The complete electronic copy of the report and the separate digital or electronic copy of any plan sheets or drawings shall be provided in formats and on media acceptable to the department.

(2) COVER LETTER. An applicant shall prepare a letter detailing the desired department action or response in reference to the submittal.

(3) CERTIFICATION. (a) An applicant shall prepare and submit the reports and plan sheets under the seal of a licensed professional engineer. In addition, the applicant shall include the following certification:

"I, _____, hereby certify that I am a licensed professional engineer in the State of Wisconsin in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements ch. NR 182, Wis. Adm. Code."

(b) An applicant shall prepare feasibility reports, plans of operation, site investigation, and any other reports that require interpretation of geology or hydrogeology under the seal of a licensed professional geologist. In addition, an applicant shall include the following certification:

"I, _____, hereby certify that I am a licensed professional geologist in the State of Wisconsin in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code; that the preparation of this document has not involved any unprofessional conduct as detailed in ch. GHSS 5, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in ch. NR 182, Wis. Adm. Code."

(4) TECHNICAL PROCEDURES. An applicant shall use the current standard procedures as specified by ASTM International, USGS, U.S. environmental protection agency's standard methods for the examination of water and wastewater, or other equivalent or appropriate methods approved by the department to complete all technical procedures used to investigate a mining waste facility. An applicant shall specify the test procedures used in the report. An applicant shall explain in detail, with reasons provided, any deviation from a standard method used in the report.

(5) VISUALS. An applicant shall provide maps, figures, photographs and tables to clarify information or conclusions. The visuals shall be legible and submitted in reproducible printed form and electronic format, specified by the department. All paper copies of maps, plan sheets, drawings, isometrics, cross-sections and aerial photographs shall meet all of the following requirements:

(a) Printed visual materials may not be larger than 32 inches by 44 inches and may not be smaller than 8 1/2 inches by 11 inches. Printed photographs may not be smaller than 4 inches by 6 inches. Engineering plans shall be drawn on standard 24 inch by 36-inch plan sheets, except that if facility details cannot be adequately depicted on standard plan sheets at a 1:100 scale, the engineering plans may be drawn on 30 inch by 42 inch plan sheets.

(b) Be of appropriate scale to show all required details in sufficient clarity.

(c) Be numbered, referenced in the narrative, titled, have a legend of all symbols used, contain horizontal and vertical scales, where applicable, and specify drafting or origination dates.

(d) Use uniform scales.

(e) Contain a north arrow.

(f) Use mean sea level as the basis for all elevations.

(g) Contain a survey grid based on monuments established in the field that utilizes a coordinate system and datum acceptable to the department.

Note: Examples of acceptable coordinate systems include state plane, Universal Transverse Mercator, and Wisconsin Transverse Mercator.

(h) Show original topography and the grid system on all plan sheets showing construction, operation, or closure topography. For complex plans, existing conditions within the mining waste facility area may be shown by lighter lines or may be eliminated.

(i) Show survey grid location and reference major plan sheets on all cross-sections. A reduced diagram of a cross-section location plan view map shall be included on the sheets with the cross-sections.

(6) TABLE OF CONTENTS. An applicant shall include a table of contents listing all sections of the submittal.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (3) (b) made under s. 35.17, Stats., Register December 2021 No. 792.

NR 182.105 Location criteria. No person may establish, construct, operate, maintain, or permit the use of property for a nonferrous mining waste facility within any of the following areas, except pursuant to an exemption granted under s. NR 182.119:

(1) Within areas identified as unsuitable in s. 293.01 (28), Stats., and in s. NR 131.103 or 132.103 (27). In addition to the areas specified in s. 293.01 (28) (a), Stats., the presence of endangered and threatened species as designated by the department under s. 29.604, Stats., shall be considered.

(2) Within 1,000 feet of any navigable lake, pond, or flowage.

(3) Within 300 feet of a navigable river or stream.

(4) Within a floodplain.

(5) Except when the site is screened by natural objects, plantings, fences, or other appropriate means so as to be as aesthetically pleasing and inconspicuous as is feasible, within 1,000 feet of the nearest edge of the right-of-way of any of the following:

(a) Any state trunk highway, interstate highway, or federal primary highway.

(b) The boundary of any state or federal park.

(c) The boundary of a scenic easement purchased by the department or the department of transportation.

(d) The boundary of a designated scenic or wild river.

(e) A scenic overlook designated by the department by rule.

(f) A bike or hiking trail designated by the United States congress or the state legislature.

(6) Within 1,200 feet of any public or private water supply well.

(7) Within an area that contains known mineral resources at the time of initial application that are likely to be mined in the future and lie within 1,000 feet of the surface.

(8) Within 200 feet of a fault that has had displacement in Holocene time.

(9) Within seismic impact zones.

(10) Within unstable areas.

(11) Within 200 feet of the property line.

(12) Within an area where the department, after investigation, finds that there is a reasonable probability that disposal of mining waste within such an area will result in a violation of applicable surface water quality criteria and standards as specified in chs. NR 102 to 104.

(13) Within an area where the department finds, after investigation, there is a reasonable probability that disposal of mining waste within such an area will cause groundwater quality enforcement standards to be attained or exceeded beyond the design management zone specified in s. NR 182.107.

(14) Within wetlands, except pursuant to the provisions under s. 281.36, Stats.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (intro.) made under s. 13.92 (4) (b) 7., Stats., Register December 2021 No. 792.

NR 182.106 Minimum design and operation requirements. (1) An operator shall locate, design, construct, and operate a waste site or facility approved and licensed by the department under this chapter to meet all of the following requirements:

(a) Comply with water quality standards issued under s. 281.15, Stats.

(b) Comply with standards promulgated pursuant to s. 283.21 (1), Stats.

(c) Comply with ch. 283, Stats., if the facility has a storm water discharge or a point source discharge to the waters of the state, including any point source discharge from a leachate or surface water runoff collection system.

(d) Have the approval of the municipal authority for a point source discharge regulated under ch. 283, Stats., if the facility discharges to a publicly owned treatment works.

(e) Prevent air emissions from such site or facility from causing a violation of standards or rules promulgated under ch. 285, Stats.

(f) Ensure consistency with the requirements of ch. 293, Stats., chs. NR 131 and 132, and all permits and plans approved under those rules.

(2) In addition to all other requirements of this chapter, no person may construct, establish, operate, or maintain a waste site except in conformance with the conditions attached to the feasibility approval pursuant to the hearing under s. 293.43, Stats., the approved plan of operation, and all of the following requirements:

(a) An operator may not deposit waste in a manner that the waste or leaching therefrom will result in a violation of any groundwater standard or surface water quality criteria or standards as specified in chs. NR 102 to 104 or in this chapter.

(b) An operator shall divert surface water drainage away from and off the active fill area and treat as necessary to ensure compliance with applicable water quality standards and criteria.

(c) An operator shall restrict access to the site or facility, particularly the active disposal area, through the use of fencing, natural barriers, or other methods approved by the department.

(d) An operator shall make the entire perimeter of the active disposal site accessible for inspection and appropriate heavy equipment and other vehicular access required for emergency maintenance.

(e) An operator shall strip any area to be utilized for the disposal of mining waste or borrow areas of all topsoil to ensure that adequate amounts are available for closure or other measures approved by the department to protect topsoil. An operator shall consider environmental and reclamation factors, unless the department determines that such action will be environmentally undesirable.

(f) An operator shall use effective means to control dust resulting from the site or facility as under s. NR 415.04.

(g) An operator shall abandon all soil borings and monitoring wells in accordance with the requirements of ch. NR 141.

(h) An operator shall make provisions for back-up equipment in the event of critical operating equipment breakdown.

(i) An operator shall include contingencies for emergency conditions in design and operation specifications for mining waste facilities. Such contingencies may include emergency power supplies, equipment redundancies, or temporary holding facilities.

(j) An operator shall ensure that any mining waste facility designed with a liner or situated in sufficiently low permeability soils to either partially or totally contain leachate are designed with a leachate management system that can effectively remove leachate, prevent surface seeps, and promote adequate settlement to permit final reclamation.

(k) An operator may dispose or store only waste types and sources listed on the license or otherwise approved by the department in writing, in an approved mining waste facility.

(L) An operator shall maintain the final slopes of a closed mining waste site to be no less than 2 percent and no greater than 33 percent unless the site or facility is specifically designed for a final use compatible with other slopes.

(m) An operator shall ensure that all sites have a final cover designed to minimize infiltration and subsequent leachate production unless the department approves an alternate cover in the reclamation plan or unless the department determines that such cover is not necessary to comply with the environmental standards of this chapter.

(n) An operator shall make provisions for the collection and treatment of leachate for all sites designed to contain leachate.

(o) An operator shall locate, design, construct, and operate a waste site so that any liner system or naturally occurring soil barrier is compatible with all disposed or stored mining waste.

(p) An operator shall ensure that tailings impoundments and other water-holding facilities constructed as part of the mining waste site are designed to contain the 100-year, 24-hour rainfall event and to prevent overtopping by waves during this design storm, or designed to contain the 100-year, 24-hour rainfall event and maintain a minimum of 5 feet of freeboard. The size of the storm event shall be determined based on current rainfall probability data, including models or forecasts, approved by the department for this purpose.

(q) An operator shall select and design drainage or filter bed material to promote drainage, reduce the potential for piping, and be stable under leaching conditions.

(r) An operator shall ensure that material used in earth embankments or drainage or filter bed material is free, to the extent practicable, of vegetation, organic soils, frozen soils, and other extraneous matter that could affect the compactibility, density, permeability, or shear strength of the finished embankment.

(s) An operator shall compact embankment materials or drainage or filter bed materials to 95 percent of the maximum dry density as determined by the standard proctor compaction test or to a greater density as dictated by the embankment height. The material shall be compacted in lifts of 6 to 8 inches in thickness. If waste rock is approved by the department for use outside an earth core, compaction and crushing of such waste rock may not be necessary if the applicant demonstrates that stable slopes can be constructed and maintained without compaction and crushing of the waste rock.

(t) An operator shall provide emergency spill areas along the tailings pipeline corridor to allow for draining the pipeline, if necessary, in case of power interruptions or pipeline failure. Tailings pipelines should be self-draining to the tailings area or to an emergency spill area or both. In some cases, such as a long pipeline over rough country, the department may require several spill areas to be provided.

(3) An operator shall design and operate mining waste facilities to ensure management of stormwater in a manner that minimizes uncontrolled releases and adverse environmental impacts. Provisions for stormwater management shall incorporate all of the following:

(a) An operator shall design storm water drainage ditches, structures, and sedimentation basins such that the construction of these items shall occur during the initial stage of construction to control runoff and limit entrained sediment from reaching surface water bodies.

(b) An operator shall incorporate all of the following concepts in the design of both temporary and permanent erosion and sediment control measures:

1. Schedule grading and construction to minimize soil exposure.

2. Retain existing vegetation whenever feasible.

3. Vegetate and mulch disturbed areas.

4. Divert runoff away from disturbed areas and active fill areas.

5. Minimize runoff velocities.

6. Prepare drainageways and outlets to handle concentrated or increased runoff.

7. Trap sediment on site.

8. Inspect and maintain runoff control structures.

(c) An operator shall perform the design calculations required in pars. (d), (e), and (f) for the period in the mining waste facility's development during which the combination of surface conditions and contributing acreage would result in the greatest runoff volume.

(d) An operator shall design all permanent storm water drainage ditches, sedimentation or retention ponds, swales, conveyance channels, channel linings, outlet protection, culverts, and other storm water control structures handling flow onto or off the mining waste facility to accommodate peak flow rates from a 100 year, 24-hour storm event. The size of the storm event shall be determined based on current rainfall probability data, including models or forecasts, approved by the department for this purpose.

(e) An operator shall design temporary and permanent sediment control measures to settle 0.015 mm size particles for all storms up to, and including, the 25 year, 24-hour storm. The surface area for permanent sediment basins shall be calculated using the rainfall intensity over the 25 year, 24-hour storm event for the mining waste facility. Principal spillways, and outlet protection for sediment basins shall be designed to pass a 100 year, 24-hour storm event. Emergency spillways for sedimentation basins shall be designed to pass a 100 year, 24-hour storm event. The size of the storm event shall be determined based on current rainfall probability data, including models or forecasts, approved by the department for this purpose. The design of the dewatering structures for sediment basins shall be selected such that the basin is dewatered in no less than 3 days. An analysis shall be performed to document compliance with this requirement.

(f) An operator shall design containment berms placed around active fill areas to control and collect the liquid volume resulting from the 100 year, 24-hour storm event. The design shall consider the volume of liquid generated from active fill areas, including all areas with exposed solid waste or areas with waste covered by daily cover. The size of the storm event shall be determined based on current rainfall probability data, including models or forecasts, approved by the department for this purpose. Storm water in contact with active fill areas shall be handled and treated as leachate.

(g) An operator shall divert storm water away from the active fill area of the mining waste facility and any borrow areas to a sedimentation control structure.

(h) An operator shall ensure that storm water drainage ditches, structures, and sedimentation basins discharge along existing drainage patterns capable of accepting the anticipated flow volume. An operator shall perform an analysis to determine the amount and velocity of runoff prior to mining waste facility development and to document compliance with this requirement.

(i) An operator shall design storm water diversion and construction at a mining waste facility to minimize impacts, such as erosion, sedimentation, and flooding.

(j) An operator shall ensure that the design of all storm water management features complies with all applicable requirements of the department including ch. NR 103 and permits required under ch. 30, Stats.

(4) An applicant shall consider the following parameters and concepts when planning, designing, constructing, and operating a mill and a mining waste facility, the application of which shall be dependent on the specific design, the nature of the waste, the composition of any leachate associated with the waste, and the hydrogeologic conditions existing at the disposal site:

(a) When practicable, on a site-specific basis, an operator shall ensure that a mining waste facility is located in the same watershed as the mining surface facilities.

(b) When practicable, on a site-specific basis, an operator shall ensure that a mining waste facility is located so that tailings pipelines do not cross any major watercourse or pass through any wetland where such crossing would be inconsistent with s. 281.36, Stats. Tailings pipelines shall be as short as practicable.

(c) An operator shall minimize upstream rainfall catchment areas.

(d) An operator shall ensure that the outside crest of the dam or embankment is higher than the inside crest in order to force runoff on the crest to the inside of the dam.

(e) When practicable, an operator shall ensure that the design of a mining waste disposal facility facilitates and incorporates ongoing or staged reclamation.

(f) An operator shall market mining wastes that are not used for construction or reclamation purposes and that present a significant risk of environmental pollution subject to all of the following requirements:

1. An operator shall ensure that the products and by-products of such marketing will not result in a greater potential for environmental pollution.

2. An operator shall ensure that a market for a particular waste is reasonably available.

3. An operator shall ensure that the costs for disposing of such waste exceeds the costs for its marketing.

(g) An operator shall minimize, in the disposal of mining waste, the discharge of environmental pollutants to the groundwaters of the state.

(5) The applicant shall give high priority to the selection of a design and operating procedure for the mine, mill, and mining waste disposal sites that will provide for the reclamation of all disturbed sites and minimize the risk of environmental pollution. When practicable, an applicant shall select facilities and practices to ensure any of the following:

(a) Minimize production of mining waste through the design and operation of the mining facility.

(b) Provide for the segregation of acid-generating wastes from those materials that are not acid-generating waste.

(c) Provide for eventual underground backfill of waste, in the event of underground mining, with emphasis on segregated acid-generating materials.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22.

NR 182.107 Groundwater standards and evaluation. (1) GROUNDWATER QUALITY. (a) *Applicability.* Notwithstanding the applicability provisions of s. NR 140.03, under the authority of ss. 293.15 (11) and 293.66, Stats., mining waste facilities regulated under this chapter and other facilities situated on a prospecting site regulated under ch. NR 131 or a mining site regulated under ch. NR 132, shall comply with the groundwater quality standards specified in ch. NR 140 as implemented in this section.

(b) *Design management zones.* 1. The horizontal distance to the boundary of the design management zone for mining waste facilities regulated under this chapter shall be 1,200 feet from the limits of filling, unless reduced under s. NR 140.22 (3), or at the boundary of property owned or leased by the applicant, whichever distance is less.

2. The horizontal distance to the boundary of the design management zone for a surface mine or surface prospecting excavation shall be 1,200 feet from the edge of the mine or prospecting excavation, unless reduced under s. NR 140.22 (3), or at the boundary of property owned or leased by the applicant, whichever distance is less.

3. The horizontal distance to the boundary of the design management zone for an underground mine or prospecting excavation shall be 1,200 feet from the maximum outer edge of the underground prospecting or mine workings adjacent to the ore body as projected to the land surface, unless reduced pursuant to s. NR 140.22 (3), or at the boundary of property owned or leased by the applicant, whichever distance is less.

4. The horizontal distance to the boundary of the design management zone for facilities, other than the prospecting excavation, mine, and mining waste facility, situated on a prospecting site regulated under ch. NR 131 or a mining site regulated under ch. NR 132, shall be as specified in Table 4 of ch. NR 140, if listed, or 150 feet from the edge of the facility, unless expanded or reduced under s. NR 140.22 (3), or at the boundary of property owned or leased by the applicant, whichever distance is less.

(c) *Depth of useable groundwater.* 1. For facilities located on a mining or prospecting site or any activity that will take place under a mining or prospecting permit or under another approval related to a mining or prospecting operation, the department shall determine the depth of useable groundwater.

2. For an activity regulated under a mining or prospecting permit or another approval related to the mining or prospecting operation, the department may not apply a groundwater enforcement standard at any point that is deeper than the depth of useable groundwater.

(d) *Mandatory intervention boundary.* The horizontal distance to the mandatory intervention boundary for a mining waste facility or a surface or underground mine or prospecting excavation shall be 150 feet from the limits of filling, the outer edge of the mine or prospecting excavation, or the outer edge of the underground workings as projected vertically to the land surface, unless the boundary of the design management zone is within 300 feet of the outer waste boundary, mine, prospecting excavation, or underground prospecting, or mine workings. In no case may the mandatory intervention boundary extend more than one half the distance from the limits of filling, mine, prospecting excavation, or underground prospecting or mine workings to the boundary of the design management zone. The mandatory intervention boundary shall apply as provided in subs. (1s) and (1u).

(1p) SUBSTANCES WITHOUT A STANDARD UNDER CH. NR 140. For any substance for which there is not an enforcement standard and preventive action limit in ch. NR 140, the waste site, mine and other facilities on a mining site may not cause concentrations that have a substantial deleterious impact on a current beneficial use or a significant future beneficial use of groundwater, such as drinking, irrigation, aquaculture, maintenance of livestock, or maintenance of aquatic and terrestrial ecosystems, as designated by the department.

(1s) CONTINGENCY PLAN. (a) As part of its plan of operation approval issued under s. NR 182.109 (3) (b), the department shall determine the adequacy of the contingency plan submitted by the applicant under s. NR 182.109 (2) (d) that specifies the action that will be taken if an analysis of groundwater samples requires a response under ss. NR 140.24 to 140.27 and this section. The contingency plan shall provide that the response protocol includes a comparison of the observed sampling results to the results of the original predictive modeling, completed as part of the feasibility report and mine permitting and environmental review processes, and updated predictive modeling completed subsequent to the start of operation. If the comparison indicates that the observed sampling results are consistent with the design and expected performance of the facility, and the sampling results indicate that an enforcement standard or a preventive action limit has not been exceeded within the depth of useable groundwater and beyond the mandatory intervention boundary, the operator may recommend a no response action in accordance with s. NR 140.24.

(b) If the analyses of groundwater samples collected as part of the operational groundwater monitoring program indicate that the quality of the groundwater is statistically significantly different from either baseline or background, the owner shall do all of the following:

1. Notify the department immediately.

2. Determine, if possible, the cause of the difference in quality, such as the result of a spill, a design failure, or an improper operation procedure.

3. Determine the extent of groundwater contamination or the potential for groundwater contamination.

4. Implement the applicable portion of the contingency plan and notify the department promptly of any additional remedial steps being taken.

(c) 1. If a preventive action limit or an enforcement standard has been exceeded within the depth of useable groundwater and beyond the mandatory intervention boundary, the department shall require a response in accordance with s. NR 140.24, but may not approve a no action response under s. NR 140.24 (5).

2. If a response under s. NR 140.24 (5) has previously been

taken, and if subsequent monitoring results are consistent with updated predictive modeling projections and indicate that the groundwater standards will not be attained or exceeded within the depth of useable groundwater and at the design management zone, the department may determine that a no additional response is necessary.

3. Notwithstanding the provisions of s. NR 182.119, an exemption under s. NR 182.119 may not be granted to subd. 1.

(1u) MONITORING AND INTERVENTION. (a) The department shall apply all of the following requirements, in conjunction with the requirements of ss. NR 132.117 and 182.113:

1. The operator of a prospecting or mining site shall monitor groundwater quality at locations approved by the department along the mandatory intervention boundary and the boundary of the design management zone for the mining waste site and other facilities specified by the department.

2. The operator of a prospecting or mining site shall monitor groundwater quality at locations approved by the department within the mandatory intervention boundary and the design management zone for the mining waste site and other facilities specified by the department.

3. The department shall require intervention by the operator in accordance with the provisions of the contingency plan, submitted as part of the plan of operation under s. NR 182.109, when analyses of samples from monitoring points within the design management zone or within the mandatory intervention boundary show a reasonable probability that, without intervention, there may be a violation of the established groundwater quality standards at the boundary of the design management zone. The department shall use the results of the predictive modeling submitted by the applicant as part of the feasibility report, mining permit application, environmental impact report, and other information available to the department to determine criteria of "reasonable probability."

4. The department may specify additional monitoring locations and tests needed to support a comparative analysis of the observed groundwater quality and the predicted impacts to groundwater quality documented in the feasibility report, mining permit application, environmental impact report and wastewater engineering report.

5. An operator shall monitor groundwater at locations approved by the department in the vicinity of the prospecting or mining site on a monthly basis for at least 12 consecutive months during the initial site preparation and construction phase at the mining waste site and prospecting or mining site to further characterize baseline water quality prior to operation. An operator shall include, in the parameters analyzed, those substances specified by the department for monitoring, indicator parameters as specified by the department, parameters identified as important based on characteristics of the mining wastes, and any other parameters deemed appropriate by the department for the specific conditions of the site.

6. An operator shall conduct monitoring of groundwater quality within aquifers potentially affected by the prospecting or mining activity at locations which are not expected to be affected by the prospecting or mining operation or the mining waste facility.

(b) In addition to the requirements under par. (a), the department shall specify the parameters for groundwater analysis and may include those considered indicator parameters and those important parameters identified from the waste characterization studies that may be appropriate under the specific conditions.

(1x) NON-COMPLIANCE WITH GROUNDWATER STANDARDS. If the department has reason to believe that a site is not in compliance with the requirements of this section, or if the department projects with reasonable probability that a site will not achieve such compliance at the boundary of the design management zone and within the depth of useable groundwater, it shall require the operator to take appropriate intervention measures specified in the contingency plan submitted under s. NR 182.109, and may take additional actions including those prescribed in s. NR 140.26.

(2) GROUNDWATER QUANTITY. (a) The department shall evaluate proposed mining waste facilities to determine whether construction, operation, and closure of the facility will result in the unreasonable detriment of public or private water supplies or the unreasonable detriment of public rights in the waters of the state. The department may not approve any mining waste facility if the facility is likely to result in unreasonable detriment of public or private water supplies or the unreasonable detriment of public rights in the waters of the state.

(b) If the department finds that the proposed waste site will result in the unreasonable detriment of public or private water supplies or the unreasonable detriment of public rights in the waters of the state, the department shall either deny necessary approvals or the operating license for the facility or impose conditions on the necessary approvals and operating license in a manner consistent with s. 293.65 (3) (b), Stats.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22: renumbering of (1x) (a) to (1x) made under s. 13.92 (4) (b) 1., Stats., Register December 2021 No. 792.

NR 182.108 Feasibility report. (1) An applicant is encouraged to contact the department during the early stages of project planning and development to determine what permits and approvals may be required and to assure that submissions are consistent with department requirements.

(2) No person may establish or construct a mining waste site or expand an existing mining waste site without first obtaining approval of a feasibility report and a plan of operation from the department. The purpose of the feasibility report is to determine whether the site may be approved for the purpose intended and to identify any conditions that must be included in the plan of operation and in the license issued under this chapter. The feasibility report shall be prepared and submitted to the department in accordance with s. NR 182.104. The feasibility report shall be submitted at the same time as the permit application and plans submitted under ch. NR 131 or 132 and shall be consistent with the applications and plans submitted under ch. NR 131 or 132. If the proposed mining waste site is a surface mine backfilled with mining waste, the feasibility report submittal provisions of this section may be satisfied by including the information required by this section in the mining permit application submitted under ch. NR 132 and issuance of the mining permit shall constitute approval of the feasibility report and favorable determination of site feasibility. The amount of regional and site-specific information and data required for each waste site may vary and shall be based on results of the waste characterization studies, but shall, at a minimum, contain the items in subs. (3) to (13), unless such information is contained in the submittal of documents required under ch. NR 131, 132, or 150 or s. 23.11 (5), Stats.

(3) The feasibility report shall contain a general overview of the proposed mining waste facility that includes all of the following:

(a) The project title.

(b) The name, address and phone number of the person who has been designated by the applicant as the primary contact for departmental correspondence.

(c) The owner of the proposed facility.

(d) The location of the proposed facility.

(e) The proposed licensed acreage of the proposed facility.

(f) The proposed facility life and range of disposal capacity of the proposed facility.

(g) The estimated waste types and quantities to be contained in the proposed facility.

(4) The feasibility report shall include discussion of waste characterization studies and analysis of all mining wastes that may be disposed of or stored in the mining waste site. Waste characterization studies shall be conducted in accordance with all of the following:

(a) Waste characterization and analysis shall identify the characteristics of the wastes necessary to enable the applicant to comply with the requirements of these regulations. The waste characterization shall include an evaluation of the quantities, variability, and physical, radiologic, and chemical properties of each waste type at a level of detail necessary to support predictive modeling and assessment of potential environmental impacts related to waste handling, storage, and disposal that is sufficient to allow the department to evaluate the effectiveness of facility design and to determine the appropriate regulatory controls and monitoring requirements. The evaluation under this paragraph may include a review of the literature and results from similar existing facilities, materials, or studies in addition to project-specific characterization and analyses.

(b) Testing shall be performed on representative samples of material available or obtained through additional sampling programs, on individual wastes from the mining and milling process, and on composite wastes where mixed storage or disposal of individual wastes is proposed. When either physical or chemical segregation of a waste is proposed, each individual waste shall be tested. If representative samples of waste materials are not available and the applicant demonstrates the cost of obtaining the samples are prohibitive or technically infeasible, the analyses shall be based on the most suitable surrogate information, as determined by the department, and reasonable worst case assumptions and analyses, as determined by the department, shall be incorporated into the waste characterization evaluation and related analyses in the absence of direct analytical results. The major components of waste characterization and analysis shall include all of the following:

1. Identification of all wastes that will be disposed of or stored in the waste site. Identification shall include classification of waste types, estimation of the generation rates and volumes of each waste type, and an explanation of the ultimate disposition of each waste type.

2. Chemical, mineralogical, petrological, and radiological analyses of the wastes.

3. Particle size analyses of the wastes including specific surface area as a function of particle size.

4. Laboratory dissolution testing, of appropriate duration, to determine the acid producing characteristics of the wastes, the acid-consuming characteristics of the waste and how the waste composition and physical characteristics affect the overall acid-generation and dissolved solids dissolution from the wastes. Testing shall include both static and kinetic testing protocols appropriate for the specific waste material and shall follow the best available test methodology recommended by ASTM International or other appropriate authority.

5. Determination of the leaching potential of the wastes and determination of the composition of the resulting leachate.

6. Assessment of the presence, distribution, and abundance of asbestiform minerals in the waste materials.

7. A discussion and evaluation of the physical, radiologic, and chemical properties of the wastes materials that are critical in developing facility storage or disposal plans and designs.

8. An evaluation of the reagents proposed for use in the mining operation and how the degradation and transport of reagents may affect mineral dissolution of the waste materials, particularly tailings and leached ore materials.

9. The applicant shall describe in detail the testing methods and chain of custody protocols employed in evaluating the waste characteristics and shall provide to the department justification for the use of such methods. Test methods shall include static testing and kinetic testing of adequate duration so reactions are reasonably complete and shall also develop appropriate geochemical modeling to assess the waste characterization results and for use in predictive analyses. If the department cannot reasonably verify the methods utilized by the applicant or the results therefrom other than by independent testing, the department may require that the applicant provide representative samples to the department for such independent testing. Use of these samples shall recognize the effect of time upon the representativeness of sample analysis results.

(c) When appropriate, and if sufficient quantities of materials from bulk sampling or prospecting are available, the applicant shall conduct, if required by the department, a field-testing program to both supplement and verify literature survey and laboratory-scale testing programs.

(d) The applicant is encouraged to develop methods of waste handling that will result in the reuse or recovery of such materials. Accordingly, the feasibility report shall include a discussion of alternative methods of disposal of waste materials, including an analysis of the practicability of the reuse, sale, recovery, or processing of such wastes for other purposes.

(e) The applicant shall use the results of the waste characterization and geochemical modeling analyses, combined with information from the evaluation of regional and other site-specific information, in the feasibility report and plan of operation to evaluate facility siting alternatives, determine necessary site specific information, and develop appropriate design, construction, operation, monitoring, and long-term care requirements for each category of waste.

(f) The applicant shall provide a summary of the waste characterization as it relates to the handling, storage, and disposal of the waste.

(5) The feasibility report shall include a discussion of the regional site setting to provide a basis for comparison and interpretation of site-specific information obtained through field investigations. The applicant shall limit the discussion to information available from state agency files and publications although some field verification and updating may be necessary. The applicant shall collect and synthesize regional information from that area that may affect or be affected by the proposed mining waste site, which in most instances will be the proposed site, and the area within a radius up to 5 miles from the site. The applicant shall supplement the discussion with maps or cross-sections, when appropriate. In the discussion, the applicant shall address all of the following:

(a) Topography.

(b) Hydrology, including surface water drainage patterns and important hydrologic features such as navigable waters, springs, drainage divides, and wetlands.

(c) Geology, including the nature and distribution of bedrock and unconsolidated deposits.

(d) Hydrogeology, including depth to groundwater, flow directions, recharge and discharge areas, groundwater divides,

aquifers and the identification of the aquifers used by all public and private wells within at least 1,200 feet of each proposed site, and other information needed to establish the depth of useable groundwater under s. NR 182.107 (1) (c).

(e) Groundwater and surface water quality and precipitation chemistry.

(f) Climatology.

(g) Identification of adjacent landowners.

(h) Zoning.

(i) Present land uses, with emphasis on known recreational, historic, archaeological, scientific, cultural, or scenic significance and whether any portion of the facility lies within an area in which Indian tribes retain federally guaranteed treaty rights.

(j) Present or proposed access roads and any weight restrictions for those roads.

(k) Factors identified in s. NR 182.105.

(L) Identification of aquatic and terrestrial ecosystems such as stream orders and habitat classifications and any sensitive water resources including areas of special natural resource interest as defined in s. 30.01 (1m), Stats.

(6) (a) The feasibility report shall include site-specific information and the applicant shall perform field and laboratory investigations to further define site physical, chemical and biological characteristics in accordance with all of the following:

1. Perform field investigations to define the site-specific topography, soil types, hydrogeologic characteristics including initial assessment of the depth of useable groundwater, surface water characteristics including drainage patterns and flow rates and the presence and nature of wetlands.

2. Prepare an existing site conditions plan sheet to include a detailed topographic survey of the area of investigation. All elevations shall be tied to USGS mean sea level datum. The map, if practicable, shall have a scale no greater than 1:2,400 with a contour interval of 0.1 to 4 feet.

3. Prepare the plan in compliance with requirements of s. NR 182.104 and delineate the property boundaries, proposed waste facility and site boundaries, survey grid, buildings, water supply wells, utility lines, man-made features, soil boring locations, observation well locations and other pertinent information.

(b) The department shall determine the number and depth of soil borings required depending on the relative homogeneity of the soils at the site, the size of the area, character of the wastes and the geotechnical design requirements for the waste site. The applicant shall drill borings to define sub-surface conditions both inside and outside the proposed limits of filling. The department shall determine the number and location of borings sufficient to sample adequately major geomorphic features such as ridges and lowlands. The applicant shall classify each major soil layer encountered during the boring investigation according to the unified soil classification system. The applicant shall bore the site subject to all of the following provisions:

1. At a minimum, drill borings in 10 separate locations distributed over the first 5 or less acres of the proposed fill area. Drill a minimum of 2 additional borings for each additional 5 or less acres of proposed fill area. The applicant shall ensure that borings are located on a grid pattern covering the proposed facility and are located in or within 300 feet of the proposed limits of filling.

2. Extend borings a minimum of 25 feet below the anticipated sub-base grade. If the boring is located outside the proposed limits of filling, the applicable sub-base grade is the elevation of the bottom of the proposed base liner nearest to the borehole.

3. If regional information suggests that bedrock is within 50 feet of the lowest elevation of the proposed sub-base grades, extend one boring at least 5 feet into bedrock. Every attempt shall be made to locate this boring outside the proposed limits of filling. The applicant shall perform bedrock drilling in accordance with ch. NR 141.

4. Collect and retain samples and prepare boring logs. In each log, the applicant shall include soil and rock descriptions, method of drilling, method of sampling, sample depths, date of boring, and water level measurements and dates. The applicant shall refer all elevations to USGS mean sea level datum. The applicant shall prepare borings using a format and terminology consistent those recommended by the USGS, American Society of Testing and Materials or other industry standards.

5. Abandon borings not converted to wells in accordance with s. NR 141.25.

(c) 1. The applicant shall collect soil samples to adequately determine the geology and ensure proper design and monitoring of the site. The applicant shall collect soil samples at maximum 5-foot depth intervals, unless physical conditions, such as soil homogeneity, indicate that greater intervals would be adequate. When appropriate, the applicant shall collect samples using generally accepted undisturbed soil sampling techniques. The applicant shall classify all soil samples according to the unified soil classification system.

2. The applicant shall perform soil tests including grain-size distribution and Atterburg limits as required for classification and correlation purposes and to develop necessary geotechnical design parameters for the waste site. The applicant may not composite samples for testing purposes.

3. The applicant shall include other physical, chemical, and biological testing as appropriate in soil testing.

(d) The applicant shall determine the hydraulic conductivity of the various soil strata. The applicant shall use in situ hydraulic conductivity testing procedures to confirm laboratory values.

(e) The applicant shall install groundwater wells and piezometers at locations sufficient to define the hydrogeologic and groundwater quality conditions of the proposed mining waste facility and for determining whether the proposed facility will be capable of complying with applicable groundwater standards required under s. NR 182.107. The applicant shall comply with all of the following requirements:

1. Install observation wells to adequately define the water table surface and horizontal and vertical hydraulic gradients in and around the proposed site. At a minimum, install 5 water table observation wells for the first 5 or less acres of disposal area and one additional observation well for each additional 5 or less acres of disposal area. Construct the observation wells so that the water table intersects the well screens at all times during the year.

2. Install a piezometer adjacent to a water table observation well at 2 separate locations to create well nests for the first 5 or less acres of disposal area. Install one additional piezometer for each additional 10 or less acres of disposal area to create additional well nests. For every 20 acres of disposal area, place at least one well nest within the proposed limits of filling.

3. For proposed limits of filling located in a fine-grained soil environment, each well nest required under subd. 2. shall consist of 3 wells: a water table observation well, a piezometer installed at or just below the proposed sub-base grades, and a deeper piezometer installed at least 15 feet below the bottom of the upper piezometer's well screen.

4. Ensure that wells are located upgradient and downgradient of the proposed facility, within the limits of filling, within and at

the mandatory intervention boundary and within and at the design management zone.

5. Construct water table observation wells and piezometers in compliance with ch. NR 141 unless an alternative method of well design and installation is approved by the department prior to well construction.

6. Collect and analyze soil samples as described in par. (c) 1. to 3. from all observation wells and piezometers, or the deepest well of a well nest, or a sampled boring within 20 feet of such a well if the soil boring is of similar depth.

7. Document well construction in accordance with ch. NR 141 and include the elevation of the ground surface, the top of the pipe, the bottom of each boring, the well seals, the screened interval, a description of well construction, and a boring log, as required in par. (b) 4.

8. Upon completion, develop each well in accordance with s. NR 141.21.

9. Make successive water level measurements in each well or piezometer until stabilized readings are obtained.

10. Design, install, develop, document and sample all wells in accordance with ch. NR 141. The department may approve alternative methods of well design and installation that achieve comparable results prior to well construction.

(f) The applicant shall prepare an environmental characterization report that describes the structure and functional relationships of potentially impacted ecosystems. The report shall include an analysis of all relevant site-specific environmental information data and all of the following:

1. A baseline environmental monitoring program consistent with the requirements of ss. NR 132.105 and 132.117. The baseline program shall address physical-chemical and biological monitoring in the vicinity of the proposed mining waste facility necessary to evaluate the potential environmental impacts associated with construction and operation of the facility. The applicant shall select physical-chemical parameters based on transport and transformation mechanisms in the environment as well as other factors affecting the mobility and toxicity of pollutants. The applicant shall select biological parameters based on the environmental characterizations, the degree of impact predicted, and the potentially affected organisms' sensitivity to contaminants. The applicant shall select monitoring programs of sufficient scope and duration to adequately characterize seasonal and spatial variability in natural conditions.

2. A land use map showing plant communities, wildlife habitat, endangered and threatened species occurrences, to the extent that disclosure of such information is not restricted, archeological or historic sites, buildings, and areas of social and cultural importance. The applicant shall use the existing site conditions map as a base map.

3. The baseline groundwater quality at all wells that were installed outside the proposed limits of filling to evaluate the proposed mining waste facility. The applicant shall analyze samples for appropriate indicator parameters including, calcium, magnesium, sodium, potassium, iron, manganese, bicarbonate, sulfate, nitrate, chloride and alkalinity, public welfare related parameters identified in ss. NR 140.12 and 140.20, and other constituents based on the specific waste types and waste characteristics. The department may require additional parameters based on the results of ongoing monitoring and characterization studies. To determine baseline groundwater quality for the parameters, the applicant shall collect and analyze a minimum of 8 samples, with at least 30 days between samples, and submit the results to the department with the feasibility report and plan of operation.

4. A table showing existing water quality of all potentially affected surface waters. The table shall include navigable waters, as defined in s. 30.01 (1m), Stats., and important aquatic habitat, including wetlands, springs and area of special natural resource interest, as defined in s. 30.01 (4m), Stats.

5. Local climatological data for seasonal precipitation, evaporation, air temperature, and wind velocity and direction. The applicant shall collect meteorological data in the vicinity of the proposed facility to facilitate correlation of the on-site conditions with data from existing regional sites with long-term meteorological records.

(7) The applicant shall propose a facility design, based on the conclusions resulting from the analysis of site data and waste characterization, capable of ensuring compliance with applicable standards. The proposed facility design shall consist of the preliminary type, size, and location of the proposed facility, engineering plans, a general discussion of proposed operating procedures, and a proposed monitoring program. This section of the feasibility report shall include, for each waste site, all of the following:

(a) A map, using the existing site conditions map as a base, that shows proposed access, lateral extent of filling, and phases of facility development.

(b) A series of cross-sections showing present topography, proposed base grades, and final grades, using the geological sections as a base.

(c) The preliminary earth work balance calculations.

(d) The proposed methods for leachate minimization, collection, and treatment.

(e) The proposed operating procedures including the method of site development, phasing, erosion control, and stormwater management, screening, access control, and other special design features.

(f) The estimated material balances prepared from best available information showing the quantities of the wastes identified in par. (a). These material balances shall include all of the following:

1. The projected conditions existing at the end of a typical year of production.

2. The projected conditions existing before and after a significant change in operating practice of the mine waste site or facility, such as the end of active filling and subsequent closure of a cell of a tailings disposal area and the establishment of another.

3. The projected conditions existing at the end of operations.

4. The projected conditions existing at the end of closure and final reclamation.

(g) A discussion of the reasoning and logic behind the design of the major features of the site, such as traffic routing, base grade, and relationships to subsurface conditions, phases of development, anticipated waste types and characteristics, acid-generation controls, liner system and final cover system design, facility monitoring, and similar design features necessary to ensure compliance with applicable standards.

(h) A proposed monitoring program developed for the purpose of determining whether the proposed facilities meet all environmental standards. The initial monitoring program design and specifications should be based on potential variations in the quality and quantity of waste materials, methods of processing, transport and disposal, and the variability of important environmental conditions.

(i) The information, based on predictive modeling, to demonstrate that there is a reasonable certainty that the facility, as designed, will not result in a violation of the groundwater quality standards, specified in ch. NR 140, beyond the design manage-

ment zone and within the depth of useable groundwater. The operator shall demonstrate compliance with applicable groundwater and surface water quality standards for a period consisting of the time period in which the mining waste site is proposed to operate, plus 250 years after closure of the mining waste site, unless a shorter time period is specified by the department. If any statistically significant change in baseline groundwater quality is predicted, the applicant shall prepare a specific assessment of any adverse environmental impacts reasonably expected to result. If the background concentration of a substance attains or exceeds a preventive action limit for that substance or if it is expected, with reasonable certainty, that a preventive action limit will be exceeded beyond the design management zone, the applicant shall request an exemption under ss. NR 140.28 and 182.119.

(j) For expansion of existing facilities, an evaluation of the effectiveness of the existing site design and operation.

(8) The applicant shall complete a groundwater modeling analysis of potential impacts. The analysis shall include enough information to assess existing groundwater flow conditions and to predict possible impacts to groundwater quality and quantity from the mining waste facility and other facilities on the mining site in compliance with the requirements of sub. (7) (i) and s. NR 182.107. The groundwater modeling analysis shall be completed in coordination with groundwater studies conducted to comply with chs. NR 132 and 150, ss. 281.34 and 293.65, Stats., and other applicable laws and rules of the department. The modeling analysis shall include the following:

(a) A clear statement of the purpose and objectives of the model.

(b) A discussion of the hydrologic data necessary to construct the groundwater model and the methods proposed to obtain the necessary data.

(c) A discussion of the formulation of the conceptual hydrologic model of the study area, including dimensionality, transience, and boundary conditions.

(d) A discussion of the selection criteria for choosing the model code used to simulate the study area and forecast future conditions. Models used for groundwater flow and contaminant transport analyses shall consist of public domain open source software. Secondary models used to generate and organize input files, process model outputs or evaluate model boundaries are not required to consist of public domain open source software but must be fully documented and verified.

(e) A description of the design and construction of the model, including how the conceptual understanding of groundwater flow is translated to the groundwater model.

(f) A discussion of model calibration and verification, including what model parameters were adjusted, what targets were used in the calibration process, how well the model performs at verification/history matching, and why the history matching process and selected targets are appropriate for the modeling purpose. Also included in the model calibration should be a discussion of statistics used to quantify model calibration.

(g) A sensitivity analysis to determine how uncertainty in model parameters or boundary conditions might impact the model predictions.

(h) The predictive simulations that address the modeling objectives and that simulate a range of possible outcomes.

(i) The uncertainty analyses of the model overall to help quantify the underlying uncertainty of assumptions made during the modeling process, and analysis of how this uncertainty impacts the model predictions.

(j) A modeling report that addresses all the information in this subsection, as well as all modeling files and data necessary to review the modeling effort.

(9) The feasibility report shall include a preliminary water budget for 3 time periods: before construction, during active operation, and after facility closure. The water budget calculations shall be made for 3 climatological situations depicting dry, wet, and average precipitation - evaporation conditions based on climatologic records. The water budget shall describe the estimated amount and quality of seepage and discharge to surface and groundwater. The applicant shall consider all of the following factors in preparation of the water budget: precipitation, slurry water input and return, evaporation, surface runoff, infiltration, evapotranspiration, groundwater recharge rates, soil and waste moisture holding capacity, and groundwater flow velocities and volume.

(10) The feasibility report shall include an analysis of the impact of the waste disposal site on aesthetics and how such impact can be minimized.

(11) The feasibility report shall include a summary of the slope stability analyses of all mining waste facilities conducted as part of the plan of operation under s. NR 182.109 (2) (b) 15., in the feasibility report.

(12) The feasibility report shall include a discussion of design, location and operational alternatives that includes all of the following:

(a) Identification and evaluation of alternatives to the design and location of any new proposed waste site, including an economic analysis of sites that are both environmentally and economically feasible. Operation alternatives shall be discussed to the extent they have a significant impact on design and location alternatives.

(b) Identification and analysis of various alternative sites so that a legitimate comparison between several of the most viable sites can be made. In order to minimize the total adverse environmental impact, a viable site shall be chosen that will result in the least total overall adverse environmental impact.

(c) Documentation of the process by which the preferred site and critical design elements were selected. The analysis shall document that the preferred site and design will result in the least overall environmental impact compared to other viable sites and designs.

(d) Supporting data for all viable alternative waste sites and designs considered by the applicant in the siting and design alternatives analysis.

(13) The feasibility report shall include an appendix that contains all of the following:

(a) Boring logs, soil tests, well construction data, and water level measurements.

(b) The measured baseline values for all parameters monitored, the spatial and temporal variability of these baseline values, and the error associated with the baseline values and the natural variability. For all parameters with significant variability or sample frequency problems that will make comparison with subsequent analyses less reliable than expected or desired, the applicant shall identify additional monitoring or analytical measures to achieve the desired levels of precision. The applicant shall provide sufficient data, documentation of statistical procedures, and summary statistics to allow independent evaluation of baseline values.

(c) Methods and assumptions used in the analysis of the raw data.

(d) References.

(14) (a) The department shall review a feasibility report sub-

mitted under this chapter in accordance with the time limitations specified in ss. 293.40 and 293.495, Stats.

(b) Following completion of the hearing and within the time periods specified under s. 293.43, Stats., the department shall issue a final determination of feasibility that states the findings of fact and conclusions of law upon which the determination is based. The site may be found feasible if it meets the design, operation, location, and environmental standards contained directly or by cross-reference in this chapter. The department may condition the issuance of the final determination of feasibility upon special design, operational, or other requirements deemed necessary to ensure compliance with applicable standards. The final determination of feasibility shall specify the design capacity of the proposed facility. The issuance of a favorable final determination of feasibility constitutes approval of the facility for the purpose stated in the application but does not guarantee plan approval under s. NR 182.109, or licensure under s. NR 182.111.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (2), (4) (a), (6) (e) 3., (f) 3., 4., (8) (intro.) made under s. 35.17, Stats., correction in (2) made under s. 13.92 (4) (b) 3., correction in (8) (j) made under s. 13.92 (4) (b) 7., Stats., and correction in numbering of (14) made under s. 13.92 (4) (b) 1., Stats., Register December 2021 No. 792.

NR 182.109 Plan of operation. (1) No person may establish or construct a mining waste site or expand an existing mining waste site until a plan of operation has been submitted to the department in accordance with this section and approved in writing by the department. No person may establish, construct, operate, maintain, close, provide long-term care for, or terminate a mining waste facility except in accordance with the approved plan of operation. The plan of operation shall be prepared and submitted to the department in accordance with s. NR 182.104. The plan of operation shall be submitted at the same time as the permit application and plans submitted under ch. NR 131 or 132 and shall be consistent with the applications and plans submitted under ch. NR 131 or 132. For new facilities on permitted mining or prospecting sites, a person may submit a plan of operation with the feasibility report or at any time after the feasibility report is submitted. No person may submit a plan of operation for a facility prior to the time the person submits a feasibility report to the department for that facility. If the proposed waste site is a surface mine backfilled with mining waste, a person may satisfy the requirements for submitting the plan of operation under this section by including the information required by this section in the mining permit application submitted to the department under ch. NR 132 and issuance by the department of the mining permit shall constitute approval of the plan of operation requirements.

(2) All plans of operation for waste sites shall be consistent with the feasibility report and mining permit application for the waste site and shall contain detailed plans and specifications necessary for the construction, operation, closure, long-term care and termination of the project. All information shall be presented in a clear and understandable manner. The plan of operation shall contain all of the following information:

(a) A set of engineering plans drawn on standard 24-inch by 36-inch plan sheets. If facility details cannot be shown on standard plan sheets at a 1:100 scale, the engineering plans may be drawn on 30-inch by 42-inch plan sheets. All plan sheets except the title sheet, existing conditions sheet, cross-sections, and details sheets shall utilize the existing conditions sheet as a base map. For complex plans, existing conditions within the mining waste facility area may be shown by lighter lines or may be eliminated. All plan sheets shall also be submitted in digital form using appropriate geographic information system format. The engineering plans shall include all of the following:

1. A title sheet that indicates the project title, who prepared the plans, the date the plans were prepared, the applicant for whom the plans were prepared, a table of contents, a map showing the location of the facility relative to the other mining project facilities, the location of the facility within the county or multicounty area, and the location of the county or multicounty area within the state.

2. An existing conditions plan consisting of a detailed topographic map of the proposed facility and all areas within 1,500 feet of the proposed limits of filling prior to development. The minimum scale shall be 1" = 200 feet with a maximum 2-foot contour interval. The contour interval selected shall be sufficiently small to clearly show surface water flow patterns within and around the facility. All elevations shall be related to USGS datum. The existing conditions plan shall identify and define all of the following:

a. The surface waters including intermittent and ephemeral streams and wetlands.

b. The property boundaries, the proposed waste facility boundary, and the proposed limits of filling.

c. A north arrow, mining waste facility survey grid, a formula for converting grid locations to the state plane coordinate system, and the locations of all existing and proposed survey monuments.

d. Any nearby residential and commercial structures and other buildings.

e. The locations of all soil borings, all existing and abandoned groundwater monitoring wells, all public and private water supply wells, and the general locations of all known septic system drain fields within 1,000 feet of the mining waste facility or within 500 feet of any monitoring well.

f. Any utility lines, underground pipelines and electrical lines, access control, and other constructed topographic and drainage features.

3. Plan sheets that depict the sub-base grades, all sub-base appurtenances, such as lysimeters or drain pipes, and the base grades.

4. Separate plan sheets that depict the overall mining waste facility area and the limits of liner construction and filling. The plan sheets shall depict the layout and slope of the liner system and leachate collection system including pipes, sumps, riser pipes on interior sideslopes, manholes, trenches, berms, lift stations, permanent storm water control structures, pipe cleanouts, and other pertinent structures. Invert elevations shall be provided at any changes in grade for all leachate and groundwater collection and transfer systems.

5. A series of phasing plan sheets that show facility development through time. The location of peripheral features such as support buildings, access roads, drainage ditches, sedimentation basins, any other storm water management features, and screening berms shall be indicated on this plan. At a minimum, the engineering plan shall provide a separate plan sheet for initial construction and for each subsequent phase of development or new area where substantial construction is to be performed. These subsequent phasing plan sheets shall present the final filling surfaces in the previous phases of development; the limits of clearing, grubbing, and topsoil removal; the base grades of the new phase of filling; the anticipated surface contours of soil stockpiles at the time depicted on the plan sheet; and storm water management features. Each plan shall include a list of construction items and quantities necessary to prepare the phase of development indicated on the plan.

6. Plan sheets that depict the features to be constructed for storm water management at the time of initial construction, during phased development, and after closure of the mining waste fa-

cility. Plan sheets shall include the locations of sediment basins, drainage ditches, auxiliary sediment traps, and the anticipated extent of cleared ground and stockpiles during each major phase of facility development. Plan sheets shall include a list of anticipated actions and materials needed for sediment and erosion control.

7. A final waste grades plan sheet that indicates waste final grades. The engineering plan shall include a final topography plan sheet to indicate the condition of the entire facility following closure including storm water drainage features and the location of all other penetrations of the final cover, if applicable.

8. A facility monitoring plan that shows the location of the design management zone as determined under s. NR 182.107 and all devices for the monitoring of leachate quality and quantity, unsaturated zone water quality and flow rate, groundwater quality, storm water quality, and surface settlement.

9. A long-term care plan sheet that shows the topography of site at the completion of closure. This plan sheet shall include a table identifying those items anticipated to be performed during the period of long-term care for the site including the proposed schedule for monitoring and maintenance of the facility. The applicant may include the information in this subdivision in the final site topography plan sheet if clarity is not compromised, or reference may be made to the appropriate section of the operations manual and design report.

10. Detailed plan review sheets that show a minimum of 2 cross-sections in each direction drawn perpendicular and parallel to the facility baseline through the major dimensions of the facility. The applicant shall illustrate the location of the cross-sections using a reduced scale plan view on each cross-section. Each combined engineering and geologic cross-section shall show all of the following:

a. Existing grades.

b. Sub-base, base, top of leachate collection blanket grades, and final grades.

c. Soil borings and monitoring wells that the depicted cross-section passes through or that are adjacent to the cross-section.

d. Soil and bedrock types. For clarity, a number or symbol shall be used to label major soil units instead of extensive shading.

e. Stabilized water table contours.

f. Leachate collection and monitoring systems.

g. Limits of waste filling.

h. Erosion, storm water, and sediment control structures.

i. Access roads and ramps on the perimeter of the disposal area and within the active fill area.

j. Filling sequence or phasing interfaces and other facility features.

k. Important construction features of the liner, final cover, lysimeters, leachate collection trenches and sumps, liner penetrations, sideslope risers, and drainage systems for storm water.

11. Drawings showing details and typical cross-sections for all of the following:

a. Storm water control structures.

b. Access roads.

c. Fencing.

d. Final cover and base liner systems.

e. Leachate collection system components, including pipe bedding, manholes, transfer lines, force mains, and storage tanks.

f. Leachate transfer lines that extend through the liner.

g. Groundwater and unsaturated zone monitoring devices.

h. Buildings.

(b) An operations manual and design report consisting of all of the following information:

1. A table of contents that outlines, by section title and page number, the discussion required in this section.

2. General information that identifies all of the following:

a. The name of the facility.

b. The registered professional engineer who prepared the plans.

c. The facility owner, licensee, and operator.

d. The location by quarter-quarter section.

e. The proposed limits of filling.

f. The anticipated life and approximate closure date.

g. The disposal capacity.

h. The waste tonnages and corresponding volumes.

i. The waste types and quantities to be disposed.

j. Any exemptions requested from the department.

3. A discussion of the considerations and rationale behind design of the major engineering features of the facility. As appropriate for the specific facility design, the discussion shall include base grade configuration and relationship to subsurface conditions, liner design, phases of facility development and closure, traffic routing, storm water management, erosion, and sediment control measures, final cover systems, and monitoring systems. Specific attention shall be given to sidewall penetrations, sideslope riser and sump area volumes and construction, and piping located outside of the limits of filling. In addressing each of the above design items, the report shall indicate how the anticipated waste types and characteristics influenced the chosen design.

4. A discussion of all of the following:

a. Initial site preparations and construction methods relating to clearing and grubbing, topsoil stripping, and other excavations.

b. Soil storage and visual screening development.

c. Storm water control features.

d. Base liner and granular drainage layers.

e. Leachate collection systems.

f. Access roads and entrance area screening and fencing.

g. Environmental monitoring device installation.

h. Other special design features.

5. A certification plan for initial site preparations that specifies a schedule of field measurements, photographs to be taken, sampling and testing procedures to be utilized to verify that the in-field conditions encountered were the same as those defined in the feasibility report and that documents that the site was constructed according to the engineering plans and specifications.

6. A description of storm water management at the time of initial construction, during phased development, and after closure of the mining waste facility that includes all of the following:

a. A narrative demonstrating compliance with s. NR 182.106 (3).

b. A detailed description of temporary and permanent erosion and sediment control measures to be used to accomplish the concepts in s. NR 182.106 (3).

c. The specifications for the design of sediment basins, culverts, drainage ditches, auxiliary sediment traps, and the anticipated extent of cleared ground and stockpiles during each major phase of facility development.

d. A maintenance and follow-up program designed to ensure compliance with the concepts in s. NR 182.106 (3) following initial implementation.

e. The tentative schedules for the following activities: cleaning sediment basins and ditches; seeding and stabilization of

stockpiles and drainage channels; and topsoil placement, seeding, and stabilization of disturbed areas and areas affected by erosion.

7. A summary of soil testing protocols and soil specification related to facility construction that includes all of the following:

a. The proposed testing schedule to document the placement of all general soil fill and backfill, base liner, final cover layers and all venting or drainage layers used in any phase of development or closure. The report shall contain an explicit statement and description of testing methods.

b. The proposed gradations of soil materials and the proposed size of the perforations used in leachate collection system piping and the drainage layer in the final cover system. The report shall include an analysis of the pipe and soil materials to demonstrate whether the gradation of sand and gravel and the pipe opening sizes are stable and self-filtering. The report shall describe the use of filter layers or other mechanisms used to maintain the porosity in the leachate collection blanket, collection trenches and sumps.

8. A proposed program to monitor the volume and quality of groundwater, surface water, unsaturated zone, and leachate. The proposed monitoring program shall include a table listing frequencies of sampling, parameters to be analyzed, and a schedule for the anticipated installation or abandonment of sampling points. The table shall indicate existing and proposed sampling points and devices and the anticipated periods during which the points and devices will be monitored before mining waste facility development, during each major phase of facility development, and during the period of long-term care.

8m. A list of all groundwater elevation data collected from all groundwater sampling points subsequent to preparation of the feasibility report.

9. A description of typical daily operations including all of the following:

a. Discussion of the timetable for the construction of each phase of liner or final cover.

b. Waste types accepted or excluded.

c. Typical waste handling techniques and methods for handling unusual waste types.

d. Hours of operation.

e. Traffic routing.

f. Storm water management.

g. Sediment and erosion control.

h. Windy, wet, and cold weather disposal operations.

i. Anticipated staffing requirements.

j. Dust control methods.

k. Leachate removal procedures.

L. Record keeping.

10. A description of the mining waste facility operations and the development of subsequent phases. A description required under this subdivision shall define the critical stage of waste disposal for each phase as it relates to the start of construction of subsequent phases. The purpose of this planning is to ensure that the scheduling of future construction takes into account the length of the construction season, limitations imposed by weather and season, and the capacity remaining in existing phases such that an orderly transition is maintained. The report shall describe the anticipated construction in each phase for storm water management, monitoring, abandonment of fill areas, and the installation and maintenance of leachate control structures.

11. A description of facility operations, actions taken when phases of the facility reach final waste grades, and closure of phases at final waste grades. The report shall include a discussion of the anticipated sequence of the required events for closure of the facility and a discussion of those actions necessary to prepare the facility for long-term care and final use.

12. A proposed long-term care schedule that describes the procedures to be utilized for the inspection and maintenance of cover vegetation, storm water control structures, refuse or ground surface settlement or siltation, erosion damage, leachate control features, leachate and groundwater monitoring, and other long-term care needs. The report shall include a final use plan for the facility and shall be consistent with the reclamation plan submitted under ch. NR 131 or 132.

13. The specifications for construction, operation, and closure of the facility. These specifications shall include detailed instructions to the operator and any contractors for all aspects of construction and operation. References to specifications on the plan sheets shall be described. The specifications under this subdivision may include information such as geosynthetic material installation instructions, tank manufacturer installation instructions and pump performance criteria, materials, and construction methods for sideslope risers, sidewall penetrations, sump areas, and all piping located outside the limits of filling.

14. All design calculations and an explanation of those calculations that will facilitate department review, including a discussion of all calculations, such as base liner and final covering soils materials needs related to available borrow soil volumes, stockpile sizing estimates, required interface shear strength, and shear strength of the soil materials where the interfaces evaluated include the upper and lower interfaces for all geosynthetics such as geomembranes, geotextiles, and geosynthetic clay liners, design of the storm water management system, infiltration and leachate collection, and leakage volumes. All calculations shall be summarized with the detailed equations presented in the appendix of the report. References to the appropriate plan sheets from which variables are obtained for these calculations shall be included in these summaries.

15. A slope stability analysis of any mining waste facility dams and embankments taking into consideration all of the following:

a. Geology of the mining waste facility including type and homogeneity of the foundation.

b. Materials and methods to be used for embankment construction.

c. Engineering modifications to be included in the design and interim and final waste slopes for all waste facilities, incorporating in-field waste densities, settlement, leachate recirculation, precipitation, and any other factors that affect strength of waste or final cover. The analyses shall include interior slopes between filling phases and exterior slopes after attainment of waste final grades.

d. Haul roads and access ramps on interim slopes at waste final grades and on final cover, including passive load of cover soils and dynamic loads due to construction, hauling, and maintenance vehicles.

e. Physical and chemical characteristics of the waste as deposited and predicted changes through time.

f. Endangerment to human safety.

g. Potential area to be affected in case of failure, considering land use and the surrounding environment.

h. Any applicable requirements specified under federal mine safety regulations.

16. A detailed analysis of the costs associated with closure of the facility and the cost of completing all tasks related to long term care of the facility for each year of the long-term care pe-

riod. All assumptions used in developing the cost estimates shall be listed, including sources of the cost estimates and rationale for the selected cost factors. The anticipated operating life and replacement schedule of all engineering design features shall be addressed and reflected in the cost estimates. The analysis shall specify the proposed methods of establishing proof of financial responsibility required under s. 289.41, Stats.

17. An analysis of the reasonably anticipated costs during the period between 40 and 250 years after closure of the mining waste facility to repair or replace any engineered cover systems or tailings water management control systems used at the mining site or mining waste site to avoid adverse environmental consequences. The report shall list all assumptions used in developing the cost estimates, including sources of the cost estimates and rationale for the selected cost factors. The anticipated operating life and replacement schedule of all engineering design features shall be addressed and reflected in the cost estimate. The analysis shall specify the proposed methods of establishing proof of financial responsibility required under s. 293.51 (1r), Stats.

18. An appendix that includes lists of the references used and includes any additional data not previously presented, supplemental design calculations, material specifications, operating agreements, such as draft leachate treatment agreements or signed soil borrow agreements, documents related to long-term care funding, and other appropriate information.

(c) For a plan of operation for any facility that includes a composite liner or composite capping layer or that utilizes a geomembrane for a liner or utilizes a geomembrane or geomembrane-GCL for a capping layer, all of the following design details and specifications for the geosynthetic components together with any additional requirements specified by the department for other geosynthetic materials used in significant structural features of the mining waste facility:

1. A description of the proposed geomembranes, GCLs and other geosynthetics to be used in construction of the facility, including resins and additives, physical properties, bentonite characteristics, chemical resistance properties and potential suppliers. For GCLs, this shall include identification of the geotextile properties and reinforcement.

2. The design calculations that demonstrate the stability of the facility and its components against failure along potential failure surfaces, such as the leachate collection system and final cover, during operations as well as after closure. Potential failure surfaces considered shall include the interfaces both below and above the geomembrane in the liner and final cover. Potential failure scenarios considered shall include both saturated and unsaturated conditions for the cover. The design calculations may use typical data or specifications from technical literature rather than values from testing of site-specific materials if the sources of the typical data or specifications and the test methods used to generate the data or specifications are cited with the calculations and a safety factor of at least 1.3 is used to assess stability.

3. The construction methods and supervisory controls for preparing the surface of the topmost lift of compacted clay prior to the installation of a geomembrane or soil barrier layer prior to installation of a GCL. The plan of operation shall propose inspection methods and removal of coarse gravel or cobbles after rolling the topmost lift of compacted clay or soil barrier layer to achieve a smooth surface.

4. A description of all of the following:

a. The measures to be taken to store and protect all geomembranes, GCLs, and geocomposite drains.

b. The measures to transport geomembrane, GCL, and geocomposite drain panels from storage to the working area.

c. The construction methods to be used to place geomembrane, GCL, and geocomposite drain panels.

5. The proposed orientation of all geomembrane and GCL panels for the facility liner and capping layer in relation to slope, collection trenches, penetrations, anchor trench and phase boundaries, seaming methods, and phased construction.

6. The design details of geomembrane and GCL seams and seaming methods, anchor trenches, patches, collars for all penetrations, installation in corners, and leachate collection trenches. The plan of operation shall describe acceptable working conditions for geomembrane, GCL and geocomposite drain installation, installation instructions for working under weather variations and extremes, and criteria for halting or limiting GCL and geomembrane installation.

7. The proposed methods for testing welds or other joining methods for geomembranes and other components or penetrations if geomembranes used in previously constructed phases are obtained from different manufacturers or are made from different resins. The plan of operation shall also include measures to preserve the edges of geomembranes and GCLs to be joined to future phases and describe measures to repair all geomembrane, GCL and geocomposite drain defects, unacceptable wrinkling, and unacceptable seams.

8. The construction methods for placing the leachate collection system, sump backfill, and sideslope riser over the composite liner; placement of the first 10 feet of waste materials over the leachate collection system; and placing the subsurface drain layer and rooting zone soils over the composite cap. The measures under this subdivision shall assure that the geomembrane and GCLs are not damaged by construction of soil layers, placement or compaction of wastes, waste consolidation, or mass movements or puncturing of the geomembrane.

9. A construction quality control plan that will be followed by all contractors preparing the surface of the compacted clay liner or soil barrier layer, constructing the geomembrane liner, or placing drainage blanket. The construction quality control plan shall describe how progress in construction, as well as any variations from the approved plans, will be recorded and reported. The construction quality control plan shall include means for determining and documenting all of the following:

a. Receipt of the proper geomembrane, GCL, and geocomposite drain material.

b. Acceptable subgrade and weather conditions for work to occur.

c. Seamer qualifications and procedures for trial seams.

d. Acceptability of test welds and machine settings.

e. Acceptable seaming practices.

f. Achieved seam quality and procedures for dealing with failing tests.

g. Patching.

h. Sealing of geomembrane penetrations.

10. A construction quality assurance plan that will be followed by the registered professional engineer and qualified technician responsible for evaluating the construction and ensuring that the fabrication and installation meet design specifications. The construction quality assurance plan shall include continuous observation of all aspects of geomembrane, GCL, and geocomposite drain installation activities by qualified engineers or technicians. The construction quality assurance plan applicable to liner and cover system components shall include use of nondestructive and destructive testing of seams and samples and shall follow a schedule of tests and associated frequencies in a manner that is consistent with the requirements of s. NR 516.07. The

construction quality assurance plan shall include proposed methods of verifying the acceptability of the prepared subgrade, repairs, patches, penetrations, seams, and adaptations by the owner and contractors to unforeseen conditions.

11. A construction quality assurance plan for conducting a leak location survey on the installed geomembrane. The leak location survey shall be conducted after placement of the leachate collection layer for a composite liner. The quality assurance plan shall include continuous observation of all aspects of the leak location survey testing by qualified professional engineers or technicians. The quality assurance plan shall include use of nondestructive methods to detect, locate, and verify repairs of defects in geomembrane. The quality assurance plan may include electrical resistivity testing or other testing methods acceptable to the department.

(d) A contingency plan to prevent or minimize human health and environmental impacts in the event of an accidental or emergency discharge or other condition not anticipated in the feasibility report or plan of operation that does not comply with license conditions or other applicable standards. As a minimum, the contingency plan shall do all of the following:

1. Follow the provisions of 33 USC 1251 et seq. related to spill prevention, control and counter-measures plan, as applicable.

2. Incorporate the requirements specified in s. NR 182.107 (1s) related to evaluation of groundwater monitoring results.

3. For the various monitoring programs required by this chapter, indicate threshold levels that, if exceeded, trigger implementation of the contingency plan.

4. Include a provision for additional monitoring locations, more frequent monitoring, additional sampling parameters, or other types of monitoring in the area of any excessive measurement.

5. Describe possible accidental or emergency discharges or other unplanned events and identify the corresponding corrective action or alternative action to be implemented if the criteria for action are exceeded.

6. Identify the time necessary for successful completion of each of the identified actions.

7. Provide for revisions in cases of changed circumstances, changed regulations, or failure of the plan to be adequate in an emergency.

(e) Proof that a notation of the existence of the facility has been recorded in the office of the register of deeds in each county in which a portion of the facility is located. Owners of facilities applying for re-licensure need only submit this proof if the legal description of the facility has changed from that identified previously.

(3) (a) The department shall review a plan of operation submitted under this chapter in accordance with the time limitations specified in ss. 293.40 and 293.495, Stats.

(b) The department may not approve or disapprove a plan of operation unless the applicant has obtained a favorable determination of feasibility for the mining waste facility. The department shall either approve or disapprove the plan of operation in writing within the time limits specified in s. 293.40 or 293.495, Stats., or within 60 days after the department issues a determination of feasibility if the determination is not issued as part of its decision following the hearing held under s. 293.43, Stats.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (2) (d) 1. made under s. 35.17, Stats., Register December 2021 No. 792.

NR 182.1095 Preconstruction meetings and reporting. (1) For composite-lined or composite-capped mining waste facilities, the department shall schedule a preconstruction meeting with representatives of the owner prior to the initiation of construction for each phase of construction of the geomembrane component of the liner or cap. At a minimum, the meeting shall include the design engineer, the appropriate department district and central office staff, the engineer or engineers responsible for quality assurance of all aspects of construction, and the geomembrane installer. The department shall use the meeting to clarify or confirm design changes, acceptability of selected construction materials, and construction concepts or practices required in the approved plan of operation or identified in the preconstruction report.

(2) The owner shall prepare a preconstruction report for construction of each phase of a composite liner as well as each phase of a composite capping or cover layer. The department may also require a preconstruction report for each phase of construction that utilizes other geosynthetics, or when other geosynthetic materials are used in significant structural features of the facility. The owner shall submit the preconstruction report to the department no later than 15 days prior to each of the preconstruction meetings under sub. (1) for the construction of the geomembrane component of a composite liner or a composite capping layer. Unless otherwise specified, the owner shall submit 3 copies of each preconstruction report to the appropriate department office as directed by the department. The preconstruction report shall include all of the following:

(a) An explanation of any proposed revisions to the plan of operation. The report shall include detail diagrams incorporating the changes and include all instructions regarding the changes between the owner, the installer, and the quality assurance contractor. The report shall highlight and explain any proposed changes to the information provided in the plan of operation. If, in the department's opinion, major changes are proposed to previously approved plans, the department shall require a plan modification approval. The report shall indicate the proposed limits of installation and the schedule for construction.

(b) An identification of the manufacturer of the geomembrane, GCL, and other geosynthetics used in construction, manufacturer qualifications, technical specifications of the geomembrane resin and polymer selected, technical specifications for geotextile and reinforcement of the GCL, bentonite specifications used for manufacture of the GCL, and results of the manufacturer's quality control tests on the geomembranes and GCLs supplied to the project.

(bd) An identification of the fabricator of geotextiles and other geosynthetics used in site construction, technical specifications of the products and materials to be used, methods used to bond the materials together and to connect panels together, installation contractor, contractor qualifications, and on-site supervisory staff.

(bh) A description of any contractor-specific storage and material handling procedures, deployment methods, attachment methods, panel overlaps, patching, procedures for minimizing bentonite loss in the GCL, and acceptable limits on sub-grade for geomembrane or GCL, including maximum rut depth, maximum stone size, removal of gravel cobbles and other debris, and limits imposed by weather conditions.

(bm) A description of methods to be used to assure the GCL does not become saturated prior to covering with soil and the procedure that will be followed if the GCL does become saturated, methods and equipment to be used to place the geomembrane over the GCL, and the maximum time between deployment of the GCL and placement of soil cover layers.

(br) A description of the selected materials and source of the

sideslope riser pipe, methods proposed to assemble and place the sideslope riser pipe, and measures to be taken to prevent puncture of the geomembrane below the sideslope riser pipe and protective drainage material.

(c) The results of a shear test conducted, in accordance with ASTM method D5321, which is incorporated by reference, on the soils and geosynthetic materials selected for use in construction of the liner system and the final cover system. The test shall be conducted using wetted soil and geomembrane interfaces. The shear test results shall be used to evaluate the stability of the geomembrane component over the clay component and the drainage layers and overburden placed on the geomembrane component. For designs which utilize a GCL, the shear test results shall be used to evaluate the stability of the geomembrane component over the GCL component and the soil barrier layer and the drainage layers and overburden placed on the geomembrane component. Wet unit weights of soils shall be used in analyses. If all soil and geosynthetic materials to be used are identical to those that were tested for a previous construction phase, then the test need not be conducted again. The department may waive testing of materials which are proposed exclusively for use on liners or final cover systems with slopes of less than 10 percent.

Note: Copies of the ASTM D5321/D5231M-20, "Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear," revised 2020, are available for inspection at the Department of Natural Resources, 101 South Webster St., Madison, Wisconsin 53703; and the Legislative Reference Bureau, 1 E. Main St., Ste. 200; Madison, Wisconsin 53703; and for purchase at http://www.astm.org.

(d) A quality control plan which provides all information specified in s. NR 182.109 (2) (c) 9., as well as identification of the installation contractor, contractor qualifications, and on-site supervisory staff. Any proposed changes to the quality control plan contained in a mining waste facility's approved plan of operation shall be highlighted and explained.

(e) A quality assurance plan that provides all information specified in s. NR 182.109 (2) (c) 10. and 11. and that identifies the registered professional engineer and qualified technician who will be providing quality assurance and that summarizes of their qualifications and related work experience.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22.

NR 182.110 Construction documentation and completion reports. (1) REPORT PREPARATION. The owner shall construct a waste site in accordance with the approved plan of operation. The owner shall prepare a report documenting all aspects of construction for the initial construction of the mining waste facility; the construction of all subsequent phases or portions thereof; the construction of any storm water, groundwater, or leachate control structures; the implementation of remedial actions; and the closure of each major disposal area. Approval of a report that documents the construction of any portion of the base of a mining waste facility shall be obtained from the department prior to initiating disposal operations in the newly established area and subsequent phases.

(2) QUALITY ASSURANCE. (a) 1. The owner shall employ a registered professional engineer or a qualified technician who is directly supervised by a professional engineer who shall be continuously on-site and performing assigned quality assurance duties throughout all of the following:

a. Placement and testing of the clay component of liner and cover systems.

b. Installation and testing of the geosynthetic components of liner and cover systems.

c. All aspects of sump and sideslope riser construction or penetrations of sidewall liners.

d. Manhole and tank installation.

e. Placement of the drainage layer or cover soil above the geosynthetic liner.

2. The registered professional engineer or qualified technician described in subd. 1. shall also be on-site to inspect the following activities after their completion:

a. Temporary and permanent erosion control measures such as ditches, fencing, and sedimentation basins.

b. Sub-base and leachate collection line undercut excavation and grading.

c. Clay liner surface preparation and grading, leachate, lysimeter, and gas piping prior to being covered with soil.

d. Piping with tanks, manholes, or vaults and installation of instrumentation and controls.

3. The department may require by written approval that a registered professional engineer be present during other critical construction activities.

(b) With respect to registered professional engineers or qualified technicians employed to meet the requirements of par. (a), substitution of personnel may only occur due to substandard performance, vacations, or uncontrollable circumstances such as injury, illness, employee termination, or resignation. However, if necessary in order to provide experienced personnel, geomembrane installation quality assurance may be performed by a different registered professional engineer or qualified technician directly supervised by the registered professional engineer described in par. (a). In no case, however, may the personnel performing quality assurance for geomembrane installation be an employee of the geomembrane manufacturer, fabricator, or installer. Also, when justified by the size of the construction project, multiple registered professional engineers or qualified technicians may perform quality assurance work concurrently.

(3) CERTIFICATION. The first section of any construction documentation report prepared for the construction or closure of a portion of a mining waste facility shall be a certification section that includes all of the following:

(a) A statement signed and sealed by each licensed professional engineer who either performed quality assurance work on the project or supervised qualified technicians who performed quality assurance work.

(b) A table clearly identifying all of the following:

1. Each licensed professional engineer and qualified technician who performed quality assurance during the construction.

2. Which aspects of construction each licensed professional engineer and qualified technician provided on site quality assurance for.

3. The number of days each licensed professional engineer and qualified technician was present at the facility performing quality assurance work.

4. The total hours each licensed professional engineer and qualified technician spent at the site performing quality assurance work.

5. The licensed professional engineer who supervised each qualified technician that performed quality assurance during the construction.

(c) A second table identifying who prepared each portion of the construction documentation report including both narrative and plan sheets.

(d) Separate signed statements by the licensed professional engineers identified in sub. (2) certifying to the best of their knowledge, information, and belief that the construction of each item identified in the following subdivisions was accomplished in conformance with the approved plans and applicable rules. All observed deviations shall be explicitly noted and discussed in-

cluding any changes in materials. This certification may not be construed to be either an implied or express guarantee or warranty regarding the performance of the construction documented in this report. No further qualifications to the certification statement may be made and each statement shall also clearly identify the personal observations, knowledge or other information on which the certification is based. The certification section shall include a signed statement for all of the following:

1. The clay component of a liner or cap. The statement shall specifically address:

a. The quality of clay material used, and the methods utilized in its placement.

b. The connections with previously placed clay layers.

c. The preparation of leachate collection trenches, sumps, and any pipe penetrations through the clay component.

d. The preparation of the upper portions of the clay component or soil barrier layer component of a composite–lined or composite–capped facility for installation of the geomembrane or GCL, including smoothness of the surface, removal of rocks and other foreign objects, and repair of the clay or soil barrier layer surface due to rain, rutting, or other damage.

e. The placement of soil or other materials placed over a composite liner or composite cap.

2. The geomembranes, grids, fabrics, nets, and appurtenances. The statement shall specifically address:

a. The connections with all previously placed geosynthetics.

b. The placement of geomembrane in collection trenches, sideslope riser sump areas and other irregularly shaped areas.

c. The connections of geomembrane around leachate transfer pipes and any other penetration of the composite liner or composite cap.

d. The removal of geomembrane wrinkles which were higher than they were wide.

3. The elements of the construction relating to leachate or storm water routing, collection, storage, and transportation systems. The statement shall include construction of leachate collection and transfer lines, side slope risers for leachate pumping, all liner penetrations, collection tanks, manholes, lift stations, lysimeters and leachate head wells.

(4) CONSTRUCTION DOCUMENTATION REPORT. In order to fulfill the construction report requirements of sub. (1), the owner of a waste mining facility shall prepare a comprehensive constructive documentation report for the construction of a new mining waste facility. The report shall contain a detailed narrative describing the construction of the facility in a logical fashion that shall contain, all of the following information, as applicable to the specific design of the facility:

(a) A set of 24-inch by 36-inch engineering plan sheets, or alternative size if approved by the department in writing, that includes all of the following:

1. A plan view documenting the constructed grades for the sub-base, sidewalls, leachate collection trench undercuts, and all sub-base appurtenances such as lysimeters and drain pipes, prior to liner placement. Documentation of the grades shall consist of spot elevations taken on a maximum 50-foot grid pattern, with leachate collection trench undercut elevations at least every 25 linear feet. If a total station or laser equipment is used to set elevations, the elevations may be taken every 50 linear feet. The approved sub-base grades shall also be shown for the same area in a clear and legible manner.

2. A plan view drawing showing the locations of all the various soil and geomembrane testing performed. Each test location shall be clearly labeled with appropriate identification codes. The plan view drawings shall clearly show any areas where removal and re-compaction of clay was necessary in order to attain the minimum required specifications. For composite-lined and composite-capped mining waste facilities, a plan view drawing shall also clearly show geomembrane panel placement, geomembrane patches and seam repairs, and geomembrane destructive sample locations. Multiple plan views may be shown on a single plan sheet if legibility is not compromised.

3. A plan sheet documenting the constructed elevations for the liner system. This plan sheet shall contain spot elevations of the base, sidewalls, and leachate collection trenches. Documentation of grades shall include spot elevations taken on a maximum 50-foot grid pattern, with leachate collection trench elevations taken every 25 linear feet. If a total station or laser equipment is used to set elevations, the leachate collection trench elevations may be taken every 50 linear feet. The approved base grades shall be shown for the same area in a clear and legible manner.

4. A plan view drawing showing the constructed base grades as well as the locations and elevations of all leachate collection and transfer piping, manholes, lift stations, culverts, and berms and the location of all unsaturated zone, groundwater, leachate monitoring and cleanout devices, surface drainage features, and other pertinent structures. This information may be shown on the plan sheet required in par. (c) if legibility is not compromised.

5. A cross-sections through the constructed area parallel and perpendicular to the base line of the facility. A minimum of 4 cross-sections shall be prepared, 2 of which shall be in each direction. Additional cross-sections shall be prepared as necessary to add clarification. Each of the cross-sections shall show actual and design sub-base and base grade contours, the top of the granular drainage blanket, leachate and groundwater pipe elevations, and the actual base and sub-base contours of adjacent filled areas. The design sub-base and base grade contours do not need to be shown if there is not an observable variation from the design grades.

6. A detail drawing, both plan view and cross-sections, of all manholes, lift stations, storage tanks, sumps, and sideslope risers or locations where leachate transfer piping exits the lined area and the secondary containment of these features as well as leak detection monitoring points and other pertinent construction details. At a minimum, these drawings shall show base and top elevations, the invert elevations of all associated piping, pump details, float level elevations, and the extent of recompacted clay placed around and below the structures. If float elevations are not available at the time of submittal of the construction documentation report, they shall be provided to the department when they are available.

7. The cross-section details to illustrate all important construction features of the liner, lysimeters, leachate collection trenches and sumps, and sediment control and storm water management systems.

8. The drawing details for leachate header lines or drain lines located outside the limits of waste in critical areas of below-ground piping, such as where several pipes cross or meet to illustrate sufficient pipe location and invert information.

(b) A narrative description of important facility design features including all of the following:

1. An analysis and discussion of all soil and geomembrane testing work performed. All density and moisture content testing results shall clearly indicate which Proctor curve or line of optimums is applicable to the soil being compacted. Any change in the referenced Proctor curve or line of optimums shall be identified as to when the change occurred and why the change was

made. All raw data from the soil and geomembrane testing performed shall be included in an appendix to the construction documentation report unless other arrangements were previously approved by the department. The raw data shall be summarized using a tabulated format. The discussion shall also include the make, model, weight, and foot length of each piece of equipment used to compact clay, if applicable.

2. A table containing thicknesses of each layer in the liner system on a 100-foot grid pattern.

3. A discussion of how the leak tests were performed on lysimeters and sideslope riser sumps and a discussion of any problems encountered and how they were resolved.

4. Documentation of the initial leachate collection pipe cleanout and pressure testing of force mains and leachate storage tanks. All provisions used to seal pipe connections, manhole sections, and leachate storage tanks including protective coatings and corrosion protection shall be described. The manufacturer's recommendations for the installation of all equipment shall be included. Any deviations from the recommendations shall be documented and discussed.

5. The daily summary reports prepared by the registered professional engineer or qualified technician performing continuous quality assurance for each day that installation of geomembrane or other geosynthetics is either attempted or accomplished when constructing composite-lined sites. The reports shall specifically describe practices employed for base grade preparation and acceptance before geomembrane installation and drainage layer placement and all of the following:

a. Identification and location of geomembrane panels placed, with modifications of the fabrication plan noted.

b. Identification of field seams and ends of panel, and results of all destructive and nondestructive field tests of test seams and installed seams.

c. Methods and procedural steps taken prior to field seaming of panels.

d. Identification of wrinkles that were large enough to double over and were cut out and repaired.

e. Identification of repairs and destructive samples and the results of the nondestructive testing of those repairs.

f. Amount and location of geotextile and other geosynthetics used in construction of the liner.

g. Identification of the sources and product information for manufactured items used in site construction including geosynthetics, including the identification of all solvents and other sealants used in pipe construction.

h. Weather conditions and constraints.

(c) A series of properly labeled 35-millimeter film color prints or prints from digital photographs documenting all major aspects of facility construction. The images shall also be provided in reproducible electronic format. As determined by the specific design features, the photographic series shall include close–up images of the construction process including clay liner and soil barrier layer placement and compaction equipment, deployment of geomembrane and all other geosynthetics, deployment equipment, leachate pipe placement including all places where transfer piping exits the lined waste fill area or sideslope riser installation, and drainage blanket placement and the installation of all manholes, sumps, sideslope risers, lift stations, and storage tanks. Panoramic views shall be included showing the prepared sub–base and the completed liner before and after granular blanket placement.

(5) CLOSURE DOCUMENTATION. In order to fulfill the closure reporting requirements of sub. (1), the owner shall prepare a comprehensive report containing a detailed narrative describing the closure of the mining waste facility in a logical fashion in coordination with reporting requirements specified in the prospecting permit issued under ch. NR 131 or the mining permit and reclamation plan approval issued under ch. NR 132. Particular emphasis shall be placed on any deviations from the approved plans. All construction documentation reports for the closure of mining waste facilities shall contain all of the following information, as applicable to the facility's design and closure specifications:

(a) A set of 24-inch by 36-inch engineering plan sheets, and corresponding electronic versions with digital geographic information system files, unless an alternative size is approved by the department in writing, that include all of the following:

1. A plan sheet documenting the final waste grades. Documentation of grades shall include spot elevations taken on a maximum 100-foot grid after grading has been performed to establish uniform slopes.

2. A plan view drawing for each one–foot thickness of clay or soil barrier layer placed, showing the locations of the various soil testing completed and detailing the tests performed at each location. Multiple plan views may be presented on a single engineering plan sheet if legibility is not compromised.

3. A plan view drawing showing the location of all geomembrane tests, geomembrane panel layout, geomembrane patches and seam repairs, and geomembrane destructive samples.

4. A plan sheet documenting the constructed final cap grades prior to topsoil placement on a maximum 100-foot grid. Approved final cap grades shall be shown for the same area in a clear and legible manner. For areas less than 4 acres, a 50-foot grid shall be used.

5. The cross-sections through the closed area that are constructed parallel and perpendicular to the base line of the facility. A minimum of 4 cross-sections shall be submitted, 2 of which shall be in each direction. Each of the cross-sections shall show all surficial and subsurface features encountered including leachate lines, and other facility structures and shall be tied into the grades of adjacent previously filled areas. At a minimum, each cross-section shall show actual sub-base grades, base grades, final waste grades, and final topsoil grades.

6. The cross-section details shall be included to illustrate all important construction features of the final cover, and sediment control and storm water management structures.

(b) An analysis and discussion of all soil, geomembrane, and other geosynthetic testing work performed. All density and moisture content testing results shall clearly indicate which Proctor curve or line of optimums is applicable to the soil being compacted. Any changes in the referenced Proctor curve or line of optimums shall be identified as to when they occurred and why the change was made. All raw data from the soil, geomembrane, and other geosynthetic testing performed shall be included in an appendix to the closure documentation report unless other arrangements were previously approved by the department. The raw data shall be summarized using a tabulated format. Also included shall be the make, model, weight, and foot length of each piece of equipment used to compact clay.

(c) A table containing thicknesses of each layer in the cover system on a 100-foot grid pattern. When determining soil thickness by using surveying information, the table shall contain elevations before and after soil layer placement on the 100-foot grid. For areas less than 4 acres, a 50-foot grid shall be used. As an alternative to the survey method, soil thickness shall be controlled using settlement plates and grade stakes, and clay thickness shall be established on a 100-foot grid using auger borings. Boreholes shall be backfilled with a soil-bentonite mix such that the in-

place permeability of the backfilled material is equal to or less than the surrounding clay cap.

(d) Daily summary reports shall be prepared for each day that installation of geomembrane or other geosynthetics is either attempted or accomplished for composite-capped mining waste facilities and shall contain the information required in s. NR 182.110 (4) (b) 5.

(e) A series of properly labeled 35-millimeter film color prints or prints from digital photographs that document all major aspects of facility closure. The images shall also be provided in reproducible electronic format. This photographic series shall include panoramic views of the closed area as well as close-up photos of the construction process and completed engineering structures.

(6) DEPARTMENT ACTION. Within 65 business days after receipt of a complete construction documentation report or a complete closure documentation report, the department shall do one of the following:

(a) Object to the construction or closure documentation report, identifying the issues that prevent the department from approving the report.

(b) Issue an approval and determination that the facility has been constructed or closed in substantial compliance with the plan of operation.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (5) (b) made under s. 13.92 (4) (b) 7., correction in (6) (a) made under s. 35.17, Stats., and numbering of (2) (a) 1. e. made under s. 13.92 (4) (b) 1., Stats., Register December 2021 No. 792.

NR 182.111 Facility license. (1) No person may maintain or operate a waste site unless the person has obtained an operating license from the department. The owner or operator of the mining waste facility shall submit an application for an initial operating license using forms supplied by the department. The department shall issue the license for the design capacity specified in the determination of site feasibility and the approval of the plan of operation unless the department establishes any of the following by a clear preponderance of the credible evidence:

(a) The site is not constructed in substantial compliance with the approved plan of operation as determined by the department under s. NR 182.110.

(b) The applicant has failed to pay any required fees or has failed to post or maintain financial assurance instruments as specified in s. 293.51, Stats.

(c) The applicant has failed to submit adequate evidence that a notation of the existence of the facility has been recorded in the office of the register of deeds in each county in which a portion of the facility is located.

(2) The department may suspend or revoke a license issued under this section for grievous and continuous failure to comply with the approved plan of operation, or for grievous and continuous failure to comply with the requirements of this chapter. The department shall review the license and plan of operation to determine compliance annually or at such other intervals as it determines necessary, but no more frequently than annually.

(3) Following closure of a site or facility and issuance of a certificate of completion of reclamation under s. NR 132.122 for the portion of the mining site that includes the mining waste facility, the owner, or any successor in interest, shall apply for and maintain a license during the period of long-term care owner financial responsibility indicated in s. NR 182.117 and s. 289.41 (1m) (g), Stats.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22.

NR 182.112 Inspections. (1) Subject to applicable state and federal safety rules or regulations, personnel or agents of the department may accompany employees of the owner on any routine inspection required by this chapter, or may conduct inspections of their own at any other time that is reasonable under the circumstances involved. Department personnel or agents may conduct inspection of proposed mining waste facilities, mine waste facilities that are under construction, and mining waste facilities that have been licensed under this chapter, including closed facilities. Personnel or agents of the department may also examine any routine inspection reports and shall be furnished copies thereof upon request.

(2) Except as provided in subs. (4) and (5), a qualified representative of the owner of a mining waste facility licensed under this chapter shall, at least weekly, visually inspect all of the following:

(a) The active sites or facilities, including dams, for possible damage or structural weakening.

(b) The waste handling and monitoring equipment and readings to ensure normal operation and measurements.

(c) The fences or barriers for possible damage.

(d) The buffer area around the facility for possible environmental damage related to its operation.

(3) A qualified representative of the owner shall record the observations made in each visual inspection under sub. (2) in the facility's operating log as set forth in these rules.

(4) A qualified representative of the owner shall inspect active dam sites monthly. The findings on each inspection shall be recorded and filed with the department. The monthly the inspection report shall include all of the following:

(a) Condition of vegetation on the dam and within 50 feet from the outside base of the dam.

(b) Piezometric levels within the mass of the dam.

(c) Condition of soil surfaces on the top and slopes of the dam and within 50 feet from the outside base of the dam.

(d) Condition of drainage ditches near the base of the dam.

(e) Liquid surface level and amount of freeboard.

(f) Condition of spillways, conduits, and water level control structures.

(5) A qualified representative of the owner shall inspect inactive dams quarterly. The findings on each inspection shall be recorded and filed with the department. The quarterly inspection report shall include all of the following:

(a) Condition of soil surfaces on the crest, slopes, and within 50 feet from the outside base of the dam.

(b) Determination of piezometric levels within the mass of the dam where such instrumentation has been determined to be necessary or required in the long-term care section of the plan of operation.

(c) Condition of spillways, conduits, and water level control structures.

(6) When a potentially defective condition is found in a dam during an inspection under sub. (4) or (5), the owner shall ensure that it is recorded and corrected at the earliest practicable time in a manner consistent with the contingency plan, if applicable. A report of the condition shall be made to the department within 24 hours after completion of the inspection and the actions proposed and taken by the owner for its correction shall be made to the department at the earliest practicable time. The department shall notify the owner, in writing, of the title, address, and telephone number of the person to whom any report under this section shall be given, which notification shall specifically refer to this section

and shall specify to whom reports are made both inside and outside of normal working hours. The department may confirm correction of the condition and specify any necessary additional corrective action. The department shall consider any of the following as indicating a condition that requires prompt investigation and may require corrective action:

(a) Seepage on the outer face of the dam accompanied by boils, sand cones or, deltas.

(b) Silt accumulations, boils, deltas, or cones in the drainage ditches at the base of the dam.

(c) Cracking of soil surface on crest or either face of the dam.

(d) Bulging of the outside face of the dam.

(e) Seepage, damp areas, or boils in the vicinity of or erosion around a conduit through the dam.

(f) Any shrinkage of the crest or faces of the dam.

(7) Any of the following conditions found in a dam during an inspection under sub. (4) or (5) indicate potential defects and shall be closely checked on subsequent inspections for an active dam and shall necessitate an intermediate inspection of an inactive dam:

(a) Patches of overgrowth vegetation on the outside face or close to the base of the dam.

(b) Surface erosion, gullying, or wave erosion on the inside of the dam.

(c) Surface erosion, gullying, or damp areas on the outside of the dam, including the berm and the area within 50 feet from the outside base of the dam.

(d) Erosion below any conduit.

(e) Wet areas or soggy soil on the outside or in natural soil below the dam.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (1) made under s. 13.92 (4) (b) 3., Stats., Register December 2021 No. 792.

NR 182.113 Monitoring. (1) GENERAL. The department shall require the owner or operator of any nonferrous mining waste disposal site or facility, or any person who permits the use of property for such purposes, to conduct monitoring of groundwater, leachate, surface water, or other physical features located at the site or facility. The department may conduct its own monitoring or retain an independent contractor, at the expense of the owner or operator of any mining waste disposal site or facility or any person who permits the use of property for such purposes, to monitor groundwater, leachate, surface water, or other physical features located at the site or facility. Monitoring of the mining waste facility shall be in accordance with the monitoring plan required under ss. NR 132.107 (4) (c) and 132.117.

(2) GROUNDWATER AND LEACHATE MONITORING. (a) The department shall require adequate monitoring to detect the effects of leachate on groundwater located at the disposal site or facility. The department may require the installation of groundwater monitoring wells and may require installation of leachate monitoring wells, lysimeters, moisture probes, and similar devices, and associated water quality sampling programs.

(b) The department shall determine the number and location of required wells required under par. (a) based on the site size, waste types, site design, and the hydrogeologic and geologic setting of the site. The number shall be adequate to yield samples representative of the groundwater quality both up and down gradient from the disposal site or facility.

(c) The owner shall construct all monitoring wells in compliance with the requirements of ch. NR 141 and in such a manner as to prevent surface water from entering the well bore and interaquifer water exchange.

(d) The owner shall submit the results of all water elevation measurement and water quality sampling to the department within 60 days of the end of the sampling period. The owner shall submit an explanation of any deviation from the approved sampling plan or analytical procedures at the same time. The owner shall submit data in the format specified by the department.

(e) The owner shall conduct groundwater sampling quarterly, during the months of March, June, September, and December, unless an alternate schedule is specified by the department. An alternate schedule may be based on the hydrogeologic system's characteristics such as flow velocity, stratigraphy, and other factors and fluctuations in quality, as defined by background or baseline sampling and waste type.

(f) 1. The owner shall base sampling parameters on the results of the waste characterization and specified in the approved plan of operation. The quarterly analysis shall include parameters listed in subd. 2., with a comprehensive analysis, described in subd. 3., completed once each year, during the summer or fall sampling period.

2. At a minimum, all of the following parameters shall be measured on each sampling date:

a. Water level.

b. Field specific conductivity, micro-mhos/cm at 25° C.

c. Field and lab pH.

d. Concentration of total dissolved solids, mg/liter.

e. The concentrations of the principal contaminant constituents, or indicators thereof, found in the largest quantity in the waste disposed of or stored in the site or facility. Toxicity of contaminants should be considered when parameters are selected.

3. A comprehensive analysis shall quantify all of the following:

a. The characteristics listed in subd. 2.

b. The concentrations of other contaminants specified by the department that would reasonably be expected to occur in leachate from the waste disposed of or stored in the site or facility.

(g) Groundwater, lysimeter, and leachate samples shall be handled and analyzed in accordance with the requirements of methods listed in, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW 846, third edition, November 1986, as amended by Updates I in July 1992, II in September 1994, IIA in August 1993, IIB in January 1995, III in December 1996 and IIIA in April 1998, which are incorporated by reference.

Note: The test methods are available at no cost at https://www.epa.gov/hw-sw846/basic-information-about-how-use-sw-846#UseWhich. Copies of the test methods are available for inspection at the offices of the department of natural resources and the legislative reference bureau. Copies may be obtained from the superintendent of documents, U.S. government printing office, P.O. Box 371954, Pittsburgh, PA 15250-7954, (866) 512-1800, www.gpo.gov. Copies may also be obtained from the national technical information service, U.S. department of commerce, 5285 Port Royal Road, Springfield, VA 22161, (800) 553-6847, www.ntis.gov.

(h) All chemical analyses under this subsection shall be conducted by a laboratory certified under s. 299.11, Stats., and ch. NR 149 for that test category. The limit of detection and the limit of quantitation shall be determined according to s. NR 149.48 (2). The analytical laboratory shall meet the requirements of the analytical method and ch. NR 149. Section NR 140.16 (4) applies to analytical results that do not meet the requirements of this subsection.

(i) If for any reason a monitoring well or other monitoring device is destroyed or otherwise fails to properly function, the site operator shall immediately notify the department in writing. The owner shall restore or properly abandon and replace with a functioning device all such devices within 60 days of notification of

the department unless the owner is notified otherwise in writing by the department.

(j) The department may require the operator to sample, contract for third-party sampling, or provide cost reimbursement to well owners for sampling public or private wells as part of a regular monitoring program or to determine the extent of groundwater contamination.

(k) No person may begin construction of a nonferrous mining waste disposal site or facility until baseline groundwater quality in accordance with the parameters under par. (f) 2. have been determined and results of such analyses submitted to the department.

(3) SURFACE WATER. The department may require the operator to monitor surface water runoff, leachate seeps, sedimentation ponds, and other surface water discharges resulting from site operation and of surface waters that may be affected by such discharges.

(4) MONITORING PHYSICAL FEATURES. The department may require the operator to monitor air quality, waste facility settlement, berm or embankment stability, vegetation growth, and drainage control structures, and may require the operator to monitor other chemical, physical, or biological conditions, if determined to be necessary to assess the impact of the disposal site on critical aquatic and terrestrial ecosystems.

(5) REQUIREMENTS FOR CERTIFIED OR REGISTERED LABORATORY. The state laboratory of hygiene or at a laboratory approved or certified by the department of agriculture, trade and consumer protection shall analyze microbiological and radiological samples. Other laboratory test results submitted to the department under this chapter shall be performed by a laboratory certified or registered under ch. NR 149. All of the following tests are excluded from the requirements under this subsection:

(a) Geotechnical and biological tests of soils.

(b) Air quality tests.

(c) Field pH tests.

(d) Field conductivity.

(e) Waste material and ore testing.

(f) Precipitation chemistry tests.

(g) Leachate-liner compatibility testing.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (2) (k) made under s. 13.92 (4) (b) 7., Stats., Register December 2021 No. 792.

NR 182.114 Recordkeeping and reporting. (1) OPERATING LOG. (a) The owner of a mine waste disposal site or facility shall keep an operating log. This log shall, at all reasonable times, be open for inspection by any authorized department employee.

(b) The owner shall promptly record all of the following information, as it becomes available, in the operating log under par. (a) and maintain the log until closure of the facility unless, otherwise provided by the department:

1. A record of each waste type disposed of or stored on a weekly basis at the waste site or facility that includes all of the following:

a. A description of the type of each mining waste.

b. The quantity in units of volume or weight of each waste type disposed of or stored on the site and the method of treatment, disposal, or storage used for each.

c. Locations, with respect to permanently surveyed benchmarks, where each waste type is disposed of or stored.

d. The waste characterization and analyses, as specified under this chapter and the approval of the plan of operation.

2. The monitoring data required under this chapter.

3. The summary reports and records of all incidents requiring initiation of a contingency plan as specified under this chapter or resulting in human health or environmental damage.

4. The records or results of visual inspections required under this chapter.

(c) The owner of a mine waste facility shall retain all records of monitoring, analytical, and quality assurance activities and data collection, including raw data, and instrumentation, calibration, and maintenance records until termination of owner responsibility, except to the extent that copies of such records have previously been provided to the department.

(d) The owner of a dam shall maintain, in a permanent file, all of the following construction records pertaining to the dam for future reference should they be needed:

1. Aerial photos of the construction site before construction.

2. Construction drawings and modifications necessary during construction.

3. Construction specifications and modifications.

4. Results of all soil tests on foundations and fill materials.

5. Logs of borings and engineering geology reports.

6. Copies of construction progress inspections pertinent to core trench, toe drain, internal drains, and other significant phases of the structure including, at the option of the owner photographs of various structural items.

7. Aerial stereo photos, or similar documentation using alternative technology, of the entire dam taken within 90 days after all construction is completed.

8. A description of and justification for all deviations or variances from the construction plans and specifications.

(2) INCIDENTS REPORT. (a) The owner of a mine waste disposal site or facility shall comply with the requirements under these rules in reporting incidents such as fires, explosions, discharges, or releases of materials into the environment. In the event that a facility has an accidental or emergency discharge, a fire, an explosion, or other unplanned or unpredicted event that has the potential for damaging human health or the environment or exceeds any limit, the operator shall follow the procedures set forth in the contingency plan and shall report such incidents to the department, county, towns, and tribal government officials identified in the plan immediately after the operator has discovered the event.

(b) The operator shall report to the department by telephone, or other communication method specified by the department, any condition listed under s. NR 182.112 (6) and par. (a) at the earliest practicable time. A written report of the reported condition shall be submitted within 5 days. The department shall notify the owner, in writing, of the title, address, and telephone number of the person to whom any report under this section shall be given, which notification shall specifically refer to this section and shall specify to whom reports are made both inside and outside of normal business hours.

(c) The owner shall turn over to the department duplicate copies of all records required under sub. (1) (b), (c), and (d) upon closure of the facility, except to the extent that copies of such records have previously been provided to the department.

(d) The owner of a mine waste disposal site or facility shall forward to the department at the end of each reporting quarter the monitoring data developed pursuant to the requirements of this chapter during the reporting quarter. A printed copy of the monitoring data shall be submitted in addition to an electronic version of the data in a format specified by the department.

(e) The owner of a mine waste disposal site or facility shall

submit an annual summary report containing statistical summaries of annual and cumulative project data including monitoring data and volumes of waste disposed or stored at the facility. The monitoring data summaries shall include comparisons to waste and leachate characterizations, geochemical modeling, effluent predictions, and baseline and background water quality data as contained in the feasibility report or plan of operation. The report shall also include the results of quality assurance and quality control procedures and present the error associated with each parameter presented. Information from unimpacted control stations should include a discussion on whether the baseline values should be modified due to natural variability and what the new values would be. At a frequency determined by the department, the report shall periodically include updated results of predictive groundwater modeling by incorporating currently available data into the original predictive model, submitted as part of the feasibility report.

(f) The owner of a mine waste disposal site or facility shall notify the department prior to cessation of disposal operations or prior to final facility closure as specified under this chapter.

(3) OPERATIONS REPORT. The department may require the owner or operator of any land disposal site or facility, or any person who permits the use of property for such purpose, to submit an operations report to assess the effectiveness and environmental acceptability of site operations. The contents of the report may include any of the following:

(a) A discussion of confinement of the active area.

(b) An analysis of leachate and pore water chemistry and comparisons to geochemical modeling results generated during the permitting process.

(c) An updated geochemical analysis.

(d) An analysis of groundwater monitoring results and comparison to results from predictive modeling completed as part of the feasibility report.

(e) Other monitoring, surface water control and erosion control, revegetation, settlement, volume utilized, leachate quantity and quality, slope stability, equipment performance, volume and type of disposed waste, and other relevant mine parameters.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22.

NR 182.115 Closure. (1) Mining waste facilities shall be closed in compliance with the plan of operation approved under s. NR 182.109 and the reclamation plan approved under s. NR 132.114.

(2) At the time of completion of closure of the mining waste site or a portion of the mining waste site, the operator shall provide proof of financial responsibility to the department in an amount equal to the reasonably anticipated costs during the period between 40 and 250 years after closure of the mining waste site, or portion of the waste site, to repair or replace any engineered cover systems or tailings water management control systems used at the mining site or mining waste site to avoid adverse environmental consequences. The proof of financial responsibility required under this subsection shall be in the amount determined under s. NR 132.116 (6) and s. 293.51 (1r), Stats., and shall be in the form of a cash deposit, which the department shall segregate and invest in an interest-bearing account, certificates of deposit, government securities, or other interest-bearing forms of security, or proof of establishment of an interest-bearing account, including an escrow account or trust account.

(3) At the completion of closure of a closed facility, or portion of a facility, the owner or operator shall reasonably secure the closed facility, or closed portion of a facility, so that injurious contact with waste by humans or animal life will be minimized, and so that discharges harmful to health or the environment will not occur.

(4) At the completion of the closure of a facility, or portion of a facility, all required equipment shall be provided and arrangements shall be made to continue post-closure monitoring as required under this chapter.

(5) At the completion of the closure of a facility, or portion of a facility, the owner or operator shall submit to the department a closure documentation report under to s. NR 182.110 (5) certifying that the facility, or portion of the facility, has been closed in accordance with this chapter and approved plans.

(6) The long-term care period for a mining waste facility, or a closed portion of a facility, shall commence after the department completes all of the following:

(a) Issues an approval and determination that the facility has been closed in substantial compliance with the plan of operation in accordance with s. NR 182.110 (6) (b).

(b) Issues a certification of completion of reclamation for the facility, or portion of the facility, under s. NR 132.122.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (2) made under s. 35.17, Stats., Register December 2021 No. 792.

NR 182.116 Financial responsibility for closure. (1) The intent of this section is to coordinate the financial responsibility requirements of ch. NR 132 and this chapter as those financial responsibility requirements affect closure of a mining site. Financial responsibility for closure of a mining waste facility shall be incorporated in the bond or other financial assurance under s. 293.51 (1), Stats., provided for reclamation of the mining site and release of the financial assurance shall be processed according to reclamation procedures. A demonstration of financial responsibility by whatever means shall not be required twice for the same obligation regardless of whether the same is set forth in more than one chapter of the administrative code.

(2) The closure requirements of this chapter shall be incorporated in and made part of the reclamation plan submitted pursuant to s. 293.37 (2) (b), Stats., and s. NR 132.109 but shall be referenced in the plan of operation submitted under s. NR 182.109. Release of the amount bonded to ensure closure according to the reclamation plan shall be processed under the provisions of s. 293.63, Stats., and s. NR 132.122 relating to the release of reclamation bonds.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22.

NR 182.117 Financial responsibility for long-term care. (1) METHODS OF PROVIDING PROOF OF FINANCIAL RESPONSIBILITY. The owner shall specify, as part of the plan of operation submittal, which method of providing proof of financial responsibility will be used for long-term care in compliance with ss. 289.41 and 293.51 (1g), Stats. To provide proof of financial responsibility, the owner may use any of the following methods to provide proof of financial responsibility under this section:

(a) *Performance or forfeiture bond.* 1. If the owner chooses to submit a bond, it shall be in the amount determined according to sub. (3) (b), conditioned upon faithful performance by the owner and any successor in interest, of all long-term care requirements of the approved plan of operation. The bond for long term care shall be delivered to the department as part of the initial operating license application submitted under s. NR 182.111. Bond forms shall be supplied by the department.

2. All bonds submitted under this paragraph shall be issued by a surety company among those listed as acceptable sureties for federal bonds in Circular 570 of the U.S. department of the treasury. At the option of the owner a performance bond or a forfeiture bond may be filed. The department shall be designated as

the obligee of the bond. Surety companies may have the opportunity to complete the long-term care of the facility in lieu of cash payment to the department if the owner or any successor in interest fails to carry out the long-term care requirements of the approved plan of operation. The department shall mail notification of its intent to use the funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether, or not, the owner has fulfilled the long-term care requirements of the approved plan of operation.

Note: Copies of Circular 570, "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" can be obtained from surety bond branch, financial management service, department of the treasury, Washington D.C. 20227, phone (202) 874-6850.

3. Each bond shall provide that, as long as any obligation of the owner for long-term care remains, the bond may not be canceled by the surety unless a replacement bond or other proof of financial responsibility under this section is provided to the department by the owner. If the surety proposes to cancel a bond, the surety shall provide notice to the department and to the owner in writing by registered or certified mail not less than 90 days prior to the proposed cancellation date. Not less than 30 days prior to the expiration of the 90-day notice period, the owner shall deliver to the department a replacement bond or other proof of financial responsibility under this section, in the absence of which all disposal operation shall immediately cease and the bond shall remain in effect as long as any obligation of the owner remains for long-term care. The surety may discharge its obligation under the bond at any time by paying the unused portion of the bond to the department.

4. If the surety company becomes bankrupt or insolvent or if its authorization to do business is revoked or suspended, the owner shall, within 30 days after receiving written notice, deliver to the department a replacement bond or other proof of financial responsibility under this section, in the absence of which all disposal operations shall immediately cease, and the bond shall remain in effect as long as any obligation of the owner remains for long-term care.

(b) *Deposit with the department.* An owner may deposit cash, certificates of deposit, or U.S. government securities with the department. The amount of the deposit shall be determined according to sub. (3) and shall be submitted to the department as part of the initial license application under s. NR 182.111. Cash deposits placed with the department shall be segregated and invested in an interest-bearing account. All interest payments shall be accumulated in the account. The department shall have the right to use part, or all of, the funds to carry out the long-term care requirements of the approved plan of operation if the owner fails to do so. The department shall mail notification of its intent to use the funds to carry out the long-term care requirements of the approved plan of operation to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether, or not, the owner has fulfilled the long-term care requirements of the approved plan of operation.

(c) *Insurance.* 1. If the owner chooses to submit an insurance policy for long-term care, a policy shall be issued for the maximum risk limit determined according to sub. (3) (b). A certificate of insurance for long-term care shall be delivered to the department as part of the initial operating license application under s. NR 182.111. Certificate of insurance forms shall be supplied by the department.

2. Except for captive insurance companies, the insurer that issues the policy under this paragraph shall be licensed to transact the business of insurance or eligible to provide insurance as an excess or surplus lines insurer in one or more states. The department, after conferring with the office of the commissioner of insurance, shall determine the acceptability of a surplus lines insurer or captive insurance company to provide coverage for proof of financial responsibility. The department shall ask the office of the commissioner of insurance to provide a financial analysis of the insurer including a recommendation as to the insurer's ability to provide the required coverage. The department shall be the beneficiary of the insurance policy. The department may require a periodic review of the acceptability of a surplus lines insurer or captive insurance company.

3. The insurance policy under this paragraph shall provide either that the unused proceeds of the policy shall be payable in full to the department upon expiration of the policy or that, as long as any obligation of the owner for long-term care remains the insurance policy may not be canceled by the insurer unless a replacement insurance policy or other proof of financial responsibility under this section is provided to the department by the owner. If the insurer proposes to cancel an insurance policy, the insurer shall provide notice to the department in writing by registered or certified mail not less than 90 days prior to the proposed cancellation date. Not less than 30 days prior to the expiration of the 90-day notice period, the owner shall deliver to the department a replacement insurance policy or other proof of financial responsibility under this section, in the absence of which all disposal operations shall immediately cease, and either the policy shall remain in effect as long as any obligation of the owner remains for long-term care or the proceeds of the policy shall be payable in full to the department.

4. If the insurance company who issues the policy under this paragraph becomes bankrupt or insolvent or if the company receives an unfavorable evaluation under s. 618.41 (6) (d), Stats., the owner shall, within 30 days after receiving written notice of the bankruptcy, insolvency, or unfavorable evaluation, deliver to the department a replacement insurance policy or other proof of financial responsibility under this section, in the absence of which all disposal operations shall immediately cease, and the policy shall either remain in effect as long as any obligation of the owner remains for long-term care or be payable in full to the department.

5. The insurance policy under this paragraph shall provide that funds, up to an amount equal to the maximum risk limit of the policy, will be available to the department to carry out the long-term care requirements of the approved plan of operation if the owner fails to do so. The department shall mail notification of its intent to use the funds for that purpose to the last known address of the owner. If the insurer or owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether, or not, the owner fulfilled the long-term care requirements of the approved plan of operation.

6. Each insurance policy under this paragraph shall contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditioned upon the consent of the insurer, provided that the insurer's consent is not unreasonably refused.

(2) COST ESTIMATES. (a) For the purpose of calculating under sub. (3) the amount of proof of financial responsibility that is required under sub. (1), the owner shall estimate the annual cost of long-term care of the facility in current dollars for each year of the long-term care proof of owner responsibility period for the fa-

cility and submit the estimated long-term care costs, together with all necessary justification, to the department for approval as part of the plan of operation submitted under s. NR 182.109. The costs shall be based on the assumption that a third party performs the work and shall be reported on a per unit basis. The source of estimates shall be indicated.

(b) The owner shall prepare and submit to the department a new cost estimate for long-term care during the active life of the facility as follows:

1. Once every 10 years following issuance of the initial operating license for the waste facility, using current dollars, unless the costs are revised under subd. 2. within the 10-year period.

2. Within 60 days of the written approval by the department of a change in site design or operation for the facility.

(c) 1. At a minimum, long-term care cost estimates under this subsection shall include all of the following when applicable:

a. Land surface care.

b. Unsaturated zone monitoring.

c. Leachate pumping, transportation, monitoring, and treatment.

d. Groundwater monitoring, including sample collection and analysis.

e. Leachate collection line cleaning, on an annual basis.

f. Annual cost of electricity for maintaining the closed site.

g. A 10 percent contingency.

2. For the purposes of preparing the long-term care cost estimates under this subsection, all monitoring requirements specified in the plan of operation shall be assumed to apply over the entire long-term care period. Leachate quantity and strength shall be assumed to remain constant over time and the calculation of leachate generation volumes shall be performed assuming that the waste is at field capacity unless an alternative method is approved by the department in writing. Only detailed performance data shall be considered when evaluating estimates for leachate strengths and leachate generation volumes. Leachate treatment costs shall be based on those available from a municipal wastewater treatment plant capable of accepting the leachate in accordance with the applicable requirements of a permit issued under ch. 283, Stats., authorizing discharge from the municipal wastewater facility. The expected operating life of all pumps, manholes, blowers, extraction wells, and other engineering design features shall be specified in the plan of operation, and as each design feature reaches the end of its anticipated operating life, the cost of its replacement shall be added to the cost estimate for the appropriate year of the long-term care period.

(d) The rates of inflation applied to cost estimates under this subsection approved by the department in previous years shall be the annual gross domestic product implicit price deflator published in the survey of current business by the bureau of economic analysis, U.S. department of commerce for the appropriate years. The projected rate of inflation to be applied in proof of financial responsibility calculations for all future years shall be equal to the annual gross domestic product implicit price deflator for the last full calendar year.

(3) CALCULATING THE AMOUNT OF THE PROOF OF FINANCIAL RESPONSIBILITY. The owner shall, as part of the plan of operation submitted under s. NR 182.109, calculate the amounts of the proof of financial responsibility required under sub. (1) for long-term care based on the chosen methods for providing proof of financial responsibility, subject to all of the following:

(a) Proof of financial responsibility for long-term care deposited as cash, certificates of deposit, or U.S. government securities under sub. (1) (b) shall be provided in accordance with all of the following:

1. Annual payments shall be made into the account at the beginning of each year of site life. All estimated annual expenditures during the long-term care proof of financial responsibility period shall be assumed to occur at the end of each year of the proof period.

2. Annual payments shall be made in equal dollar amounts or in dollar amounts that increase each year by no more than the projected rate of inflation. However, payments in excess of these minimum amounts may be made in any year, thereby reducing the amounts of subsequent annual payments for the remainder of the site life.

3. The amount of the annual payments shall be calculated and made such that, at the end of the projected facility life, the minimum dollar value of the account is equal to the sum of all estimated long-term care expenditures for the entire long-term care proof of financial responsibility period when the expenditure for each year has first been expressed in future dollars and then brought to present value using a discount rate equal to the projected rate of inflation plus 2 percent.

4. In estimating future earnings on cash, certificates, and securities deposited as proof of financial responsibility for long-term care, the weighted average rate of return of the investments held in the account may be used for a period of time not to exceed the weighted average maturity of the investments held in the account rounded to the nearest whole year. Earnings for years beyond the weighted average maturity of the investments in the account shall be calculated based on a projected rate of return equal to the projected rate of inflation plus 2 percent.

5. If an annual payment is missed or made late, the subsequent annual payment shall be increased so that the end of year balances originally calculated based on beginning of year payments are maintained.

(b) Proof of financial responsibility for long-term care provided in the form of a performance or forfeiture bond under sub. (1) (a) or insurance under sub. (1) (c) shall be equal to the sum of the costs in current dollars of performing each of the years of long-term care for the required long-term care proof of financial responsibility period.

(4) CHANGING METHODS OF PROOF OF FINANCIAL RESPONSIBILITY. The owner of an approved mining waste facility may change from one method of providing proof of financial responsibility under sub. (1) to another, but not more than once per year. A change may only be made on the anniversary of the submittal of the original method of providing proof of financial responsibility. The amount of the new method of providing proof of financial responsibility shall be in the amount that is equal to the amount that would have accumulated had the new method been used as the original method.

(5) ADJUSTMENT OF FINANCIAL RESPONSIBILITY. The owner of a facility for the land disposal of mining waste shall prepare a new long-term care cost estimate whenever a substantial change in the long-term care requirements in the approved plan of operation affects the cost of long-term care. Proof of the increase in the amount of all bonds or other approved methods established under this section shall be submitted annually to the department. The department may adjust the amount of the required proof of financial responsibility for long-term care based upon prevailing or projected interest and inflation rates and the latest cost estimates and may annually require the owner to adjust the amount of proof of financial responsibility accordingly.

(6) ACCESS AND DEFAULT. Whenever on the basis of any reliable information, and after opportunity for a hearing, the depart-

ment determines that an owner or operator of an approved mining waste facility is in violation of any of the requirements for long-term care specified in the approved plan of operation, the department and its designees shall have the right to enter upon the facility and carry out the long-term care requirements. The department may use part, or all of the money deposited as cash, certificates of deposit or government securities, performance or forfeiture bonds, or insurance under sub. (1) to carry out the long-term care requirements.

(7) AUTHORIZATION TO RELEASE FUNDS. One year after closure, and annually thereafter for the period of owner responsibility under s. 289.41 (1m) (g), Stats., the owner, who has carried out all necessary long-term care during the preceding year, may make application to the department for reimbursement from deposits with the department, or for reduction of the bond or insurance equal to the estimated costs for long-term care for that year. The application shall be accompanied by an itemized list of costs incurred. Upon determination that the expenditures incurred are in accordance with the long-term care requirements anticipated in the approved plan of operation, the department may authorize in writing the release of funds or approve a reduction in the bond or insurance. Prior to authorizing a release of the funds or a reduction of the bond or insurance, the department shall determine that adequate funds exist to complete required long-term care work for the remaining period of owner responsibility. For facilities using deposits with the department, the department may authorize the release and return of up to 75 percent of the expected cost of long-term care for the current year. Determinations shall be made within 90 days of the application. Any funds remaining in deposits with the department at the termination of the period of owner responsibility shall be released to the owner.

(8) TERMINATION OF REQUIREMENT TO POST PROOF OF FINANCIAL RESPONSIBILITY. The owner of an approved mining facility may apply, at any time at least 40 years after the closing of the facility, to the department for termination of the owner's obligation to maintain proof of financial responsibility for long-term care of the facility. The department shall process the application in accordance with the notice, hearing, and all other requirements under s. 289.41 (1m) (g), Stats.

(9) SUCCESSORS IN INTEREST. Any person acquiring rights of ownership, possession, or operation of a licensed facility shall be subject to all requirements of the license for the facility and shall provide any required proof of financial responsibility to the department in accordance with this section. The previous owner is responsible for long-term care, and shall maintain any required proof of financial responsibility, until the person acquiring ownership, possession, or operation of the facility establishes any required proof of financial responsibility.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (1) (intro.), (c) 3. made under s. 35.17, Stats., and correction in (1) (c) 2. made under s. 13.92 (4) (b) 6., Stats., Register December 2021 No. 792.

NR 182.118 Environmental fees. (1) ENVIRONMENTAL REPAIR FUND. All owners or operators of licensed mining waste disposal facilities shall pay to the department an environmental repair fee for each ton of waste received and disposed of at the facility, until the facility no longer receives waste and begins closure activities. The environmental repair fee shall be as specified in s. 289.67 (1), Stats.

(2) GROUNDWATER FUND. All owners or operators of licensed mining waste facilities shall pay to the department a groundwater fee for each ton of waste received and disposed of at the facility, until the facility no longer receives wastes and begins closure activities. The amount of the groundwater fee shall be as specified in s. 289.63 (3), Stats. The department shall deposit all groundwater fees into the groundwater fund as provided for in s. 25.48, Stats.

(3) SOLID WASTE FACILITY SITING BOARD FEE. All owners or operators of licensed mining waste facilities shall pay to the department a solid waste facility siting board fee for each ton or equivalent volume of waste or that is disposed of at the mining waste facility. The amount of the solid waste facility siting board fee shall be as specified in s. 289.64 (3), Stats. The fees collected under this subsection shall be credited to the appropriation under s. 20.370 (4) (eg), Stats., for transfer to the appropriation under s. 20.505 (4) (k), Stats.

(4) CERTIFICATION AND PAYMENT OF FEES. (a) *Certification of waste received.* The owner or operator of a licensed mining waste facility shall certify, on a form provided by the department, the amount of waste received and disposed of during the preceding reporting period. The department shall specify the term of the reporting period on the certification form. The department shall mail the certification form to the owner or operator every January. The certification form shall be completed and returned to the department within 45 days after mailing of the form by the department to the owner or operator.

(b) *Payment of fees.* Based on information certified by the owner or operator under par. (a), the department shall mail notice of fees due in May and the owner or operator shall within 30 days after mailing of the fees notice, remit the appropriate fees to the department. An owner or operator failing to remit the appropriate fees within 30 days after mailing of the fees notice to the owner or operator shall pay a late processing fee of $50.00 in addition to the appropriate fees.

(5) DETERMINATION OF WASTE TONNAGES. The owner or operator shall, subject to department approval, use one of the following methods for determining the number of tons of waste received and disposed of at the mining waste facility for purposes of certification under sub. (4):

(a) The owner or operator may use actual weight or volume records as recorded under s. NR 182.114 (1) (b) 1. b.

(b) The owner or operator may establish by field measurement the volume of waste disposed and convert to a weight using an assumed compaction density.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in numbering of section made under s. 13.92 (4) (b) 1., Stats., Register December 2021 No. 792.

NR 182.119 Exemptions and modifications. (1) AUTHORITY. The department may grant exemptions from the requirements of this chapter and modifications to any license, plan of operation, or other authority issued under this chapter as provided in s. 293.15 (9), Stats., if such exemptions or modifications are consistent with the purposes of this chapter and ch. NR 132 and will not violate any applicable federal or state law or regulation or rule.

(2) EXEMPTION AND VARIANCE REQUESTS SUBMITTED AS PART OF THE APPROVAL PROCESS UNDER S. 293.40, STATS. (a) To the extent feasible, an applicant shall submit all requests for exemptions or variances under this section as part of the mining waste site feasibility report or plan of operation and shall describe the grounds for the exemption or variance including documentation identifying the physical conditions that necessitate the exemption or variance, other reasons for the exemption or variance, discussion of any environmental impacts that will result from issuance of the exemption or variance, mitigation measures, if any, proposed to offset adverse impacts resulting from the exemption or variance, and the reasonableness of the exemption or variance.

(b) An applicant shall submit an application for an exemption

or variance under this subsection no later than 60 days after the mining permit application is considered complete under s. 293.495 (1) (a) 2., Stats. The department may consider an application for an exemption or variance submitted after that time, but only if the application is received in time to allow the application to be considered at the public informational hearing for the mining permit and other approvals under s. 293.43 (3m), Stats.

(c) The department shall issue a decision on a request for an exemption or variance as part of the decision on the feasibility report and plan of operation under ss. NR 182.108 and 182.109, except as provided in par. (d). The department shall grant the exemption or variance if all of the following conditions:

1. The exemption or variance is consistent with the purposes of this chapter and ch. 293, Stats.

2. The exemption or variance will not violate any applicable state environmental law outside of this chapter and ch. 293, Stats.

3. The exemption or variance will not endanger public health, safety, or welfare and will not result in significant adverse environmental impacts on or off the mining site.

(d) The department shall deny a request for an exemption or variance if granting the exemption or variance will result in a violation of federal law.

(e) If federal law imposes a standard for an exemption that differs from the standard in par. (c) and that cannot be modified by state law, and if that standard has been approved by the federal government for use by the state through a delegation agreement, federally approved state implementation plan, or other program approval, then the department shall determine whether to grant the request for the exemption using the federal standard.

(3) EXEMPTION AND VARIANCE REQUESTS SUBMITTED AFTER FEASIBILITY REPORT AND PLAN OF OPERATION REVIEW PERIOD AND BEFORE ISSUANCE OF APPROVALS. If an applicant submits a request for a variance or exemption under this section more than 60 days after the feasibility report and plan of operation are considered complete but before the department issues or denies approval of the feasibility report or plan of operation, the application for an exemption or variance shall be processed following the provisions of s. 293.495 (1) (c), Stats.

(4) EXEMPTION AND VARIANCE REQUESTS SUBMITTED AFTER ISSUANCE OF FEASIBILITY REPORT AND PLAN OF OPERATION APPROVALS. The department shall process exemption and variance requests under this section submitted after issuance of a mining permit as a modification under s. 293.55, Stats., and s. NR 132.120.

(5) ADDITIONAL INFORMATION REQUESTS. The department may require the applicant submitting the request for a variance or exemption to conduct specific studies and analyses and submit additional supporting documentation, as necessary, to facilitate the review of the request by the department.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22; correction in (1) made under s. 35.17, Stats., Register December 2021 No. 792.

NR 182.120 Enforcement. If the department has reason to believe that a violation of ch. 289, Stats., or the provisions of this chapter which are adopted pursuant to ch. 289, Stats., or any special order, plan approval, or any term or condition of a license issued under the authority of ch. 289, Stats., occurred, the department shall follow the procedures specified under s. 289.97, Stats.

History: CR 20-043: cr. Register December 2021 No. 792, eff. 1-1-22.