The statement of scope for this rule, SS 088-22, was approved by the Governor on November 10, 2022, published in Register No. 803A2 on November 14, 2022, and approved by the Natural Resources Board on January 25, 2023. This rule was approved by the Governor on insert date.

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD REPEALING, RENUMBERING, RENUMBERING AND AMENDING, CONSOLIDATING, RENUMBERING, AND AMENDING; AMENDING, REPEALING AND RECREATING AND CREATING RULES

The Wisconsin Natural Resources Board proposes an order to **amend** NR 500.03 (11), (18), (120), (141), (160), and (208), 500.05 (1), (3), (6) (i), 500.065 (1) and (2), 500.07, 500.08 (4), 502.04 (1) (a) 2., and (b), 503.04 (3) (a), 503.07 (3), 503.09 (1), (6) Table 1, 503.10 (1) (d), (7) (bg), (7) Table 3, and Table 4, 504.02 (1) (b) 1., 504.04 (3) (intro.), and (d), 504.04 (4) (a) and (c), 504.05 (1), 504.06 (1) (a), (2) (f) 1., (3) (e), (5) (a), (c), (dm), (e), (q), and (t), 504.07 (1) (b), and (c), (4) (a) 14., (7), (8) (Note), (9) (c), 504.075 (3), (4) (b), and (9), 504.08 (1), (2) (intro.), 504.09 (1) (j), (2) (f), and (i), 504.10 (1) (a), (3) (intro.), and (4), 506.05 (1), 506.055 (3), 506.06, 506.07 (4), (5) (a) to (c), (g), 506.08 (3), (4) (Note), (5), and (6), 506.085 (2), and (3), 506.095 (3), (5), and (6), 506.10 (1) (b) 1., 506.105 (1) (a) 1., 506.13 (2), 506.17 (1) title, 506.19 (1), and (2) (e), 507.04 (2), (3), and (4), 507.05 (1) (b), and (c), 507.06 (1) (b), 507.07, 507.08 (2), 507.09, 507.14 (1), (5) (intro.), (a), and (Note), 507.15 (2) (d), and (e), (3) (h), and (k), 507.17 (4), 507.18 (1) (a), (2) (a), (3) (a), (4), (5) (a), 507.19 (intro.), 507.20 (3) (intro.), and (Note), 507.21 (2), 507.215 (intro.), 507.22 (1) (a), and (3), 507.23 (intro.), 507.26 (2) (a), (3) (intro.), (a), (Note), (b) (intro.), 1., 2., and 4., 507.29 (intro.), 507.30 (1) (a), and (2), 507 Appendix I Table 1, 1A, 2, 3, 4, and 5, 507 Appendix III, 508.04 (intro.), (3), 508.05 (2), (3) (b), (5) (a), 508.06 (2) (c), 509.04 (1), (2), (3), (5) intro, and (b), 509.05 (1), and (2), 509.06 (3), 512.06 (2), and (3), 512.09 (1) (d), (2) (e), (4) (e) to (g), and (5), 512.10 (4), 512.11 (3), and (5), 512.12 (2), 512.13 (1) (intro.), (2), 512.14 (intro.), 512.16 (2) (b), (4) (f), and (5) (Note), 514.04 (1), and (4), 514.05 (3), (7), and (11), 514.06 (3), (4), (8), (13), and (16), 514.07 (1) (j), (3) intro, (6m) (intro.), and (10) (a) 1. (intro.), 514.10 (2) (c), 516.04 (1), (3) (d) (intro.), (5) (intro.), and (b) to (e), 516.05 (intro.), (1) (a), (c), and (e), (2) (a), (e) (intro.), 1., and (f), 516.06 (intro.), (2) (a), (d), and (g), 516.07 (2) (a) (intro.), and 4., (c) 2., 4., and 5., and (2m) (a) 1. to 3., 518.07 (2) (f), 520.04 (1) (a), (b), (d) 3. to 5., (3), and (4) (intro.), and (a), 520.05 (1), Table 1, 520.06 (intro.), (3), (4), (6) (c), and (8), 520.07 (3), and (5), 520.08 (2) (a) 3., and 4., 520.09, 520.10 (2), 520.11, 520.13, 520.14 (3) (a), (b), (c) 3. to 5., 520.15 Table 2, 524.02 (2), 524.05 (intro.), (1), (3) (intro.), 524.08 (3) (d); to **create** NR 500.03 (42m), (93g), (123s), (124f), (126m), (152e), (156m), (195m), (232m), (242m), and (253s), 500.055, 500.058, 504.04 (3m), 504.06 (2m), 504.065, 504.07 (8) (a) to (c), 504.073, 504.08 (2) (o), 504.09 (2) (L), 506.07 (1) (u), (3) (d), (4g), (4g) (Note), (4r), and (5) (i), 506.08 (5) (Note), (7), (7) (Note), 506.081, 506.09 (3), 506.095 (7), and (8), 506.17 (1) (b), (3) (d) 12., and (5), 506.19 (3), and (4), 507.04 (3m), 507.14 (4) (c) to (e), 507.16 (1) (d) 7., 507.21 (3) (b), 507.22 (2) (b), 507.26 (2) (am), 507 Appendix I Table 4A, and 6, 512.05 (2), 512.06 (3) (Note), (4), 512.11 (6), 512.13 (2m), and (5), 512.14 (1) (g) to (h), and (2) (d), 512.16 (3) Note, 514.04 (6m), 514.045 (1) (e) (Note), 514.05 (10) (a), and (5m), 514.06 (10m), 514.07 (6m) (bm) to (hm), (11) to (14), 514.09 (1) (b) 10., and (2m), 516.04 (3) (d) 4., (5) (bg), and (7), 516.05 (1) (j), (2) (g), 516.06 (1) (j), 516.07 (1g), (6), 520.04 (1) (d) 6., and (4) (d) to (i), 520.14 (1m); to **consolidate, renumber and amend:** NR 504.04 (3) (e) (intro.) and 1.; to **renumber and amend:** NR 504.07 (8), 506.17 (1), 507.15 (2) (b) (intro.), 507.21 (3), 512.05, 512.13 (4) (intro.), 514.07 (1) (i), and (6m) (c), (c) 1. to 3., (d), and (e); to **renumber:** NR 507.22 (2) and 514.07 (6m) (a), and (b); to **repeal and recreate** NR 500.03 (77), 504.04 (2), 506.12, 507.15 (2) (title), 507.26 (3) (b) 4. a., b., and c., 507.27, 512.085, 512.09 (intro.), 520.15 Table 3; and to **repeal** NR 500.03 (37), (43), (130), (199), (235), and (242), 504.04 (3) (e) 2.,504.06 (2) (b), and (c), and (4) (a) (Note), 506.105 (3) (Note 2), 507.15 (2) (b) 1., and 2., 507.215 (3) (b), 507.26 (3) (b) 4. b. (Note), 510, 512.09 (2) (e) (Note), 512.13 (4) (a), and (b), 516.09, 520.04 (4) (b), and (c), 520.14 (1), (2), and (3)

(c) 6., and 520.15 Table 5 relating to landfills, solid waste management fees, financial responsibility and reporting requirements and affecting small businesses.

WA-11-22

Analysis Prepared by the Department of Natural Resources

1. Statute Interpreted: Sections 289.05 (1) and (3), 289.06, 289.07, 289.21, 289.24, 289.29, 289.30, 289.31, 289.41, 289.42, and 289.61, Stats.

2. Statutory Authority: Sections 227.11 (2) (a), 289.05 (1) and (3), 289.06 (1), and 289.61, Stats.

3. Explanation of Agency Authority: Sections 289.05 (1) and (3), Stats., require the department to promulgate rules establishing minimum standards for construction, operation, and closure of solid waste facilities. Sections 227.11 (2) (a) and 289.06 (1), Stats., also confer rule making authority to the department to promulgate rules implementing ch. 289, Stats.

Section 289.61, Stats., requires the department to adopt by rule a graduated schedule of reasonable license and review fees to be charged for solid waste license and review activities. The statute requires the department to establish solid waste review fees at a level anticipated to recover the solid waste program staff review costs of conducting solid waste review activities.

4. Related Statutes or Rules: Sections 287.05 and 287.07, Stats., related to solid waste management priorities and prohibitions on land disposal.

5. Plain Language Analysis:
Wisconsin's solid waste management rules were substantially revised in the 1990s to comply with federal municipal solid waste landfill requirements, with limited updates since that time. Wisconsin's rules were developed to be as protective as the standards in the federal Resource Conservation and Recovery Act, commonly referred to as RCRA Subtitle D. This proposed rule amends portions of chs. NR 500 to 524, Wis. Adm. Code, to incorporate changes to solid waste landfill requirements, solid waste management fees, financial responsibility, and reporting requirements. This proposed rule reflects current industry standards and experience gained over the last 30 years related to the design, construction and operation of solid waste landfills while continuing to protect public health and the environment.

This rule proposes changes to regulations affecting municipal solid waste (MSW) landfills and industrial landfills. Many of these changes are designed to create consistency or provide additional clarity. As of May 2024, there were 58 active licensed municipal solid waste and industrial landfills and thousands of closed landfills in Wisconsin. The department also regulates landfills approved to accept only construction and demolition waste under ch. NR 503, Wis. Adm. Code. The rule does not change requirements in ch. NR 503 or plan review fees specific to construction and demolition landfills, but monitoring requirement changes or other requirements referenced in ch. NR 503 may minimally impact those landfills.

MSW landfills receive general household waste and receive other types of nonhazardous wastes, including commercial solid waste. Industrial landfills are designed to collect various commercial and institutional waste and often collect a majority of one type of waste, such as combustion ash, papermill sludge, or foundry sand. Both types must be designed and operated to meet certain criteria, including:

- Location restrictions that ensure landfills are built in suitable geological and geographical areas away from geological faults, wetlands, flood plains or other environmentally sensitive areas.

- Collection and removal systems for leachate, which is a liquid generated in landfills from the waste itself and when rainfall and snow melt come in contact with waste in landfills.
- Composite liner requirements along the bottom and sides of a landfill that protect groundwater and the underlying soil by preventing releases of leachate.
- Operating practices that include compacting waste and covering it daily with several inches of soil to help reduce odor, control litter, insects, and rodents, and protect public health.
- Groundwater monitoring requirements that require testing groundwater wells to determine whether waste materials have escaped from the landfill.
- Closure and post-closure care requirements that include covering landfills and providing long-term care of closed landfills.
- Financial responsibility requirements to ensure funding is available for environmental protection during and after landfill closure.

General Corrections and Clarifications

There are general corrections and clarifications to language throughout chs. NR 500, 504, 506, 507, 508, 509, 510, 512, 514, 516, 520, and 524, Wis. Adm. Code.

There are minor revisions related to recently updated code (CR 21-076 or Board Order WA-17-18, 2022) for coal combustion residual (CCR) landfills. These changes are required in order to obtain U.S. Environmental Protection Agency approval of a state permit program. To meet requirements, the department:

- Clarified the definitions of "Aquifer" and "Maximum horizontal acceleration in lithified earth materials."
- Required that annual reports and inspection records be posted on publicly accessible internet sites.
- Required fugitive dust control plans must also include procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at a CCR landfill.

Specific Changes within Each Chapter of Administrative Code

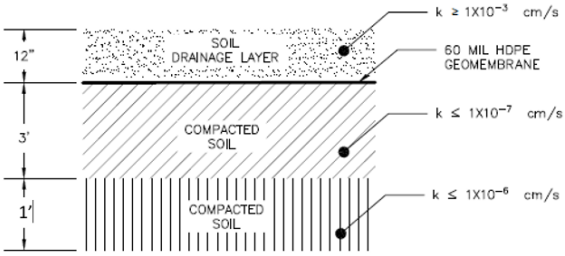
NR 500 – General Solid Waste Management Requirements

- Created new definitions for: bedrock and competent bedrock (and repealed related terms to reduce confusion), expand an existing landfill, gas monitoring well, leachate head, leachate seep, limits of disturbance, nurse crop, registered professional surveyor, underdrain system, and vertical-only expansion.
- Replaced the term "ultra low-level radioactive waste" with "Technologically enhanced naturally occurring radioactive material waste" or "TENORM waste." TENORM is a more common term used nationally and means waste containing naturally occurring radioactive materials. The definition corresponds to changes at ch. NR 506.12, Wis. Adm. Code, that standardize protective placement requirements for landfills accepting TENORM waste materials.
- Clarified that submittal requirements are not complete until the appropriate fee is paid and that paper copies of submittals are only required upon request.
- Required that surveying of landfill boundaries and environmental monitoring devices, annual topographic surveys, or other activities as requested by the department must be conducted by a licensed professional land surveyor or by a qualified technician who is directly supervised by a licensed professional land surveyor.

NR 502 and 503 – Changes are made to match amendments in other chapters of code.

NR 504 - Landfill Location, Performance, Design and Construction Criteria

- Allowed reduced separation distance between the seasonal high groundwater table and the bottom of the clay component of a landfill liner if the design includes an underdrain system. The underdrain system shall be designed to maintain the projected seasonal high groundwater table below the top of the clay component of the liner in the sump areas and below the leachate line undercuts under gravity drained conditions.
- Allowed a reduced separation distance between the top of the competent bedrock surface and the bottom of the clay component if approved by the department in writing.
- Specified that geotextiles, which are permeable fabrics used as a layer to separate, filter, and protect, that are used to line leachate collection trenches and on top of landfill liners must be at least 16 ounces/yard^2 rather than the current 12 ounces.
- Allowed a specific alternative landfill liner design than what is currently required in code for composite lined landfills (composite liners consisting of a 60-mil HDPE geomembrane and four foot thick clay liner are currently required for all municipal solid waste landfills). This is an option, not a requirement, for design of a landfill in areas that may have limitations on obtaining the current minimum four foot clay component for a landfill liner. It is expected that if a landfill chooses this option that uses a compacted sub-base and only three feet of clay in the liner design, it would be a large economic benefit because of the cost savings from not needing to purchase, transport, and place as much clay soil. The optional alternative design specifies:
    - a minimum thickness of one foot prepared soil sub-base
    - a minimum thickness of at least 3 feet for the clay component at the base of the landfill, except under the leachate collection sumps
    - a minimum thickness of at least 2 feet for the clay component of the 3:1 horizontal to vertical interior sidewalls of the landfill
    - a minimum thickness of at least 4 feet for the clay component of the leachate collection sump at the bottom and all sides of the sump, and up to the top of the sump
    - a slope of at least 2% for the liner surface toward the leachate collection lines
    - an additional minimum 6-inch inside diameter perforated leachate collection pipe shall be placed at the toe of the 3:1 horizontal to vertical interior sidewalls of the landfill, with cleanout access



- 1 foot of prepared sub-base under all portions of the clay liner
- 3 feet of clay at the base of the liner
- 4 feet of clay under the leachate collection sump
- 2 feet of clay for the 3:1 side slopes

- Specified that the minimum inside diameter of all leachate collection or transfer pipes shall be 6 inches, rather than the current 6-inch outside diameter requirement. This allows for better movement of leachate and easier cleaning of leachate collection pipes.
- Allowed alternative final cover design proposals for municipal solid waste landfills. The design must meet certain performance-based criteria and adequately protect public health, welfare, and

the environment, but is otherwise open to new design proposals. This is an option, not a requirement, for landfill owners.
- Codified a currently allowed practice to allow native seed mixes to be used on the final cover of closed landfill areas.
- Specified that when excavating soil designated to be used for a liner or final cover for the landfill, which has to meet certain performance criteria, an initial site inspection is not required at the soil borrow sources if a storm water discharge permit was previously issued. This is because the department's Storm Water Program has previously reviewed the site for the same elements in the initial site inspection.
- Clarified that all landfills must be designed to have a minimum separation distance of 50 feet between the limits of disturbance and a delineated wetland boundary, unless otherwise approved by the department in writing.

NR 506 - Landfill Operational Criteria
- Clarified in code existing expectations for how daily covers and intermediate covers are applied to the open areas of a landfill.
- Clarified that effective means of preventing the migration of explosive gases generated by waste in a landfill must be implemented "as the gas is produced." The department may also require that gas be extracted from a landfill earlier than what is currently required to meet air quality regulations if there are persistent odor issues, leachate seeps caused by gas pressure, reoccurring surface emissions greater than 500 ppm methane above background or areas with stressed vegetation or other physical signs of landfill gas emergence.
- Codified performance requirements and corrective action expectations for gas extraction systems.
- Added language to describe current expectations for leachate collection system performance, and also to allow reduced frequency of leachate collection line cleaning for high-volume industrial waste landfills if there is no historic record of blockages or other issues with the performance of the lines.
- Codified existing long-term care requirements after closure of a landfill that are currently specified in each landfill's plan of operation, including: maintaining signs and restricted access, removing vegetation that would impact the cover, preventing erosion or ponding of water, continued control and collection of gas and leachate, and continued monitoring of groundwater.
- Established notification deadlines for landfills to send certain information to the department, such as notification of a landfill surface fire within one day, notification of a subsurface fire or elevated temperatures within five days of verification, and notification of a leachate seep or leachate spill outside the limits of waste within one day of discovery.
- Codified existing annual report requirements that are currently specified in each landfill's plan of operation.

NR 507 - Environmental Monitoring for Landfills
- Proposed several minor edits to clarify proper operation, maintenance, reporting of sampling results, and labeling of monitoring devices relating to leachate and gas production or the effect on the quality of the air, groundwater, surface water, or soils. These edits reflect current practices by landfill owners and operators and best management practices in the solid waste management industry.
- Updated the submittal deadline of certain well sampling and analytical data to the department from 60 days from completing sampling and analysis (undefined, variable date) to 90 days from the end of the sampling period (a solid date). This provides more clarity and extended time for landfill operators.
- Amended baseline sampling requirements to include all groundwater wells inside and outside the landfill footprint now, not just those outside.

- Clarified and updated the requirements for landfill owners or operators to calculate and propose preventative action limits and alternative concentration limits for parameters by using baseline sample concentration data.
- Updated monitoring tables for landfills to improve the description of some parameters and reduce confusion. Removed chemical oxygen demand (COD) and, , replaced it with dissolved organic carbon (DOC) for papermill sludge landfills because the analytical process for COD generates a hazardous waste.
- Added a separate leachate recirculation monitoring table and a separate gas monitoring table for municipal solid waste landfills.

NR 508 - Responses When a Groundwater Standard Is Attained or Exceeded

- Clarified that responses are required when a groundwater standard is attained or exceeded at any groundwater monitoring well *or water supply well*.
- Linked ch. NR 508, Wis. Adm. Code, with other chapters of the Administrative Code that list existing response requirements.

NR 509 - Initial Site Reports for Landfills

- As noted earlier related to landfill design under ch. NR 504, Wis. Adm. Code, specified that when excavating soil designated to be used for a liner or final cover for the landfill, which has to meet certain performance criteria, an initial site inspection is not required at the soil borrow sources if a storm water discharge permit was previously issued.
- Updated language to clarify what is meant when the department issues an initial site report opinion on a proposed property for a landfill. The department's opinion will reflect whether the proposed property has potential for development as a landfill. If there is potential, it will identify any constraints on development and possible ways constraints could be addressed, such as removing impacts to wetlands or applying for a wetlands permit.

NR 510 - Pre-feasibility Reports for Landfills

- Repealed ch. NR 510, Wis. Adm. Code, related to optional pre-feasibility reports for proposed new landfills or expansions of existing landfills. This option has not been used by a landfill applicant since the code language became effective in 1996.

NR 512 - Feasibility Reports for Landfills

- Reduced requirements for locational criteria (listed in ch. NR 504, Wis. Adm. Code) and information submittals for vertical-only expansions of an existing landfill. For example, information from soil borings, new well installations, or bedrock descriptions would not need to be evaluated or submitted to the department because no additional land area will be impacted.
- Clarified that the department may ask for explanatory information in addition to that required in ch. NR 512, Wis. Adm. Code, prior to determining if a submitted feasibility report is complete or to determine feasibility.
- Updated language regarding geotechnical information required in a feasibility report, including establishing minimum site-specific information that a geotechnical investigation must obtain. The code retains the prescribed number of soil borings, monitoring wells, and piezometers that are required, depending on the proposed acreage of landfill development and soil type. The code also retains the minimum soil and rock tests that are required. The overall intent remains the same as current code, but some minimum qualitative standards are established and the rule codifies site-specific geotechnical information department review staff routinely request, if it is not already provided in the feasibility report. This information defines the physical characteristics of the proposed landfill's location that are needed to determine feasibility.
- Clarified what should be described in a feasibility report as possible constraints on landfill

development, such as meeting distances between proposed limits of waste and water supply wells and discussing the significance of any groundwater standard exceedances.

NR 514 - Plan of Operation and Closure Plans for Landfills

- Clarified that the department may ask for explanatory information in addition to that required in this chapter prior to or after determining if a plan of operation is complete.
- Codified current practice that the department may issue an initial site construction approval that allows initiation of construction prior to issuing the plan of operation approval.
- Codified several elements of a plan of operation submittal that the department has been regularly requesting of applicants, such as engineering design features, dust and odor control plans, and a table of phased construction events.
- Codified current practice that the department may approve delaying final cover placement for up to two years after a municipal solid waste landfill attains either final waste grades or maximum interim waste grades. This allows time for potential settling of the waste and adding new waste to the existing landfill footprint.
- Clarified that a plan of operation for a contiguous landfill expansion must include evaluations of the existing leachate collection system, gas extraction system, litter control plan, odor control plan, leachate recirculation plan, organic stability plan, and revised storm water pollution prevention plan.
- Allowed a municipal solid waste landfill to have waste placed temporarily up to 10 percent higher than the approved final waste grades when compared to the depth of waste at that location, which assumes that settling will occur before final closure and placement of a final cover. This would allow a landfill to accept additional waste and delay the need for an expansion or a new landfill. If more than 5 percent of the approved final waste grade is requested, the landfill owner or operator must establish financial responsibility for closure of the additional waste amount.
- Specified that the plan of operation for a proposed landfill property that includes private water supply wells or groundwater monitoring wells must include methods for abandonment of water supply wells located within the proposed limits of waste of the landfill.
- Codified that a plan of operation for any proposed landfill or expansion of an existing landfill that has wetlands or navigable waterways within the proposed limits of waste or in other areas proposed to be directly filled or excavated must include waterway and wetland permits or avoidance of wetlands.

NR 516 - Landfill Construction Documentation

- Clarified that the construction documentation report must include elements of the construction relating to preparation of sub-base for an alternative liner design or in areas of unsuitable soil removal.
- Required that testing be performed when constructing the sub-base of an alternative landfill liner that includes determining dry density and as-placed moisture content of the soil and the required samples per acre.
- Removed the option for expedited construction documentation approvals. This is no longer needed in code because it was requested very infrequently, and it was difficult with available staffing resources to meet deadlines when it was requested, which will continue to be the case.

NR 520 - Solid Waste Management Fees and Financial Responsibility Requirements

- Clarified that an applicant for initial licensing of a facility must pay the full annual license fee even if the license is applied for mid-year during the license period.
- Adjusted the license fee surcharge paid to the department based upon the number of tons or equivalent volume of solid waste disposed of at each landfill during each quarterly reporting period (currently 15.0 cents/ton): 25.0 cents/ton effective January 1, 2026, 27.0 cents/ton

effective January 1, 2031, and 30.0 cents/ton effective January 1, 2036.

- Codified that the license fee surcharge does not apply to waste that was previously disposed of in a licensed landfill and is excavated and disposed of in another licensed landfill, waste generated as a result of a natural disaster that meets statutorily designated criteria, and waste created as a direct result of a one-time project paid for with state funds.
- Specified that a landfill owner or operator shall maintain an active operating license until all closure activities are complete and a long-term care license is issued, if applicable, by the department.
- Increased limit from $100,000 to $250,000, or the standard Federal Deposit Insurance Corporation insurance limit, for the amount of cash or certificates of deposit allowed for certain methods used for providing proof of financial responsibility.
- Clarified that facilities located outside of Wisconsin must be included when determining the total cost of compliance under the net worth to closure, long-term care and remedial action cost ratio.
- Clarified language related to costs that must be included when estimating long-term care costs.
- Created language to allow closed landfills already in a long-term care period to adjust owner financial responsibility costs for leachate collection and management after assessing a minimum 10-year period of leachate generation rates.
- Amended language to apply a five-year average inflation factor to future owner financial responsibility calculations, and to use a discount rate equal to the projected rate of inflation plus 1.5 percent for long-term care and remedial action owner financial responsibility estimates brought to a present value. All currently active and many closed landfills are required to designate a funding mechanism that the state can access to properly close a landfill or provide long-term care. The primary change proposed for OFR requirements in this rule is to apply a five-year average inflation factor to future OFR calculation rather than a single most recent year factor. The five-year average would effectively smooth the fluctuation of year-to-year increase or decrease when conducting annual calculations. Another proposed change is to use a discount rate equal to the projected rate of inflation plus 1.5% for long-term care and remedial action and estimate OFR to a present value. Reducing the discount rate from 2% to 1.5% would have minimal to no economic effect over time on overall OFR costs. It would likely increase the amount required for a landfill owner to set aside when newly calculated, but decreases the amount needed in future years.
- Updated language related to certification reporting and payment of fees.
- Replaced two fee tables with one consolidated table and moved some footnotes to code text. The new Table 3 includes updated plan review fees, most of which had not been changed since 2006, for municipal solid waste landfills and industrial solid waste landfills based on current assigned hydrogeologist and engineer plan review costs.

NR 524 - Training and Certification Requirements for Solid Waste Disposal Facility Operators

- Clarified that certified managers and operators are not required at solid waste disposal facilities that have completed closure activities.

6. Summary of, and Comparison with, Existing or Proposed Federal Statutes and Regulations:
The proposed rule is consistent with and as protective as federal criteria under Subtitle D of the Resource Conservation and Recovery Act (RCRA, 40 CFR Part 258). The department must obtain U.S. Environmental Protection Agency approval of the rule revisions and maintain its authority to regulate solid waste disposal facilities in Wisconsin.

Statutes that provide authority for these proposed rules, current Administrative Code, and this proposed rulemaking include provisions that differ from federal regulations. That is because federal regulations are minimum, general requirements that apply nationwide. Wisconsin's solid waste management code

reflects needed environmental and public health safeguards specific to the climate and weather patterns, soil types, water resources and aquifers, and other characteristics of the State.

7. If Held, Summary of Comments Received During Preliminary Comment Period and at Public Hearing on the Statement of Scope:
The department held a virtual preliminary public hearing on the statement of scope on December 22, 2022, at 1 p.m. and 24 members of the public attended the hearing.

Upon entering the hearing, three people registered in support of the scope statement and 21 people stated they were attending the hearing for information only. Four people provided public testimony, which is summarized below:

- Meleesa Johnson (Ringle, WI), Director of Marathon County Solid Waste Department (now former director), registered in support and stated that public and solid waste industry engagement throughout the rulemaking process is valuable. Having a broad representation of industry engaged and at the table will result in positive changes to rules. She looks forward to the rule change opportunity.
- Craig Summerfield (Madison, WI), Wisconsin Manufacturers and Commerce Director of Environmental and Energy Policy, registered for information only and stated that the subject matter of the scope statement is very broad and could have a large economic impact. The rule should not be overly burdensome and no more restrictive than what is required by federal law, noting that s. 289.05, Stats., states that the department shall promulgate rules necessary to ensure compliance and consistency with the federal Resource Conservation and Recovery Act. Summerfield said the department should consider forming an official technical advisory committee so stakeholders can provide input rather than relying only on the Department's Waste and Materials Management Study Group, which does not include an industrial landfill operator.
- Lynn Morgan (Germantown, WI), WM Public Affairs Manager, registered in support and stated that she supports changes in rule that would allow alternative landfill liner and cover requirements. The rule's overarching concept should shift from prescriptive engineering requirements to performance-based requirements that allow applicants to bring in various designs that meet performance standards. With the current rulemaking process, it is difficult to conduct rulemaking frequently, which limits opportunity to update code for new technology and practices and requires variances or waivers. It would be a better use of department time to look at whether proposals meet performance standards than prescriptive standards.
- Mark Torresani (Madison, WI) registered in support and stated updating landfill location criteria and design standards will require significant technical analysis and will take time. Technical information should be reviewed early in the process so decisions and rules are based on science and technology. Rulemaking should ensure that code still allows variances and room for new technology and improvements. Industry appreciates the opportunity to conduct rulemaking.

The public comment period ended on December 22, 2022. The Department received two written comments on the proposed statement of scope from Wisconsin Manufacturers and Commerce and WM that reflected their spoken comments above.

8. Comparison with Similar Rules in Adjacent States:
Michigan, Minnesota, Illinois, and Iowa, as well as Wisconsin, all have solid waste management laws and permit programs based on federal law and approved by the U.S. Environmental Protection Agency. The landfill permitting and licensing for each state includes a technical decision-making process focusing on the ability of the proposed landfill design to meet all criteria and standards to protect public health and the environment. Each state regulates the construction, operation and closure of facilities and projects that manage, process and dispose of solid waste.

- The rule proposes to codify existing annual report requirements that are currently specified in each landfill's plan of operation. Three states—Illinois, Iowa, and Minnesota—require annual reports be submitted highlighting landfill operations from the previous year.
- The rule proposes notification deadlines for landfills to send certain information to the department, such as notification of a landfill surface fire within one day, notification of a subsurface fire or elevated temperatures within five days of verification, and notification of a leachate seep or leachate spill outside the limits of waste within one day of discovery. Minnesota requires notification of 'emergency situations' such as landfill fires and spills. Michigan requires landfills to develop and maintain an 'Emergency Response and Remedial Action Plan' for situations such as landfill fires or spills.
- The rule proposes changing the minimum inside diameter of all leachate collection or transfer pipes to be 6 inches, rather than the current 6-inch outside diameter requirement. This provides a minimum numerical standard. The four adjacent states require leachate pipes allow for sufficient flow and access for cleaning, but without a specific diameter.
- The proposed rule allows for alternative final cover design proposals for municipal solid waste landfills. The design must meet certain performance-based criteria but is open to new design proposals. All four adjacent states also allow for alternative final cover design proposals.
- The proposed rule codifies current practice that the department may approve delaying final cover placement for up to two years after a municipal solid waste landfill attains either final waste grades or maximum interim waste grades. This allows time for potential settling of the waste and adding new waste to the existing landfill footprint. Michigan allows delaying placement of final cover up to one year.
- The rule proposes allowing a municipal solid waste landfill to have waste placed temporarily up to 10 percent higher than the approved final waste grades, which assumes that settling will occur before final closure and placement of a final cover. This would allow a landfill to accept additional waste and delay the need for an expansion or a new landfill. No information was found related to this type of allowance in adjacent states.
- The proposed rule allows a specific alternative landfill liner design than what is currently required in code for composite lined landfills (composite liners consisting of a 60-mil HDPE geomembrane and four foot thick clay liner are currently required for all municipal solid waste landfills). This is an option, not a requirement, for design of a landfill in areas that may have limitations on obtaining the current minimum four foot clay component for a landfill liner. All four neighboring states have minimum liner design requirements similar to Wisconsin's and allow for an alternative landfill liner design.
    - In Michigan, municipal solid waste landfills must have: (a) a secondary (bottom) composite liner, made of two feet of compacted clay or a manufactured equivalent liner and a 60-mil plastic liner, and (b) a primary (top) composite liner, made of two feet of clay or a manufactured equivalent and a 60-mil synthetic liner. The secondary composite liner is not required if a proposed landfill location already has a natural soil barrier that is demonstrated to provide equal protection (such as 10 feet of natural low-permeability clay) or alternate system that is approved by the director and which prevents the migration of hazardous substances at least as effectively as the other options specified in Michigan rule. Additional leachate collection system components are also required along with a layer, typically two feet of sand, protecting those components.
    - In Minnesota, the liner system in combination with the cover system must achieve an overall site efficiency of 98.5 percent collection or rejection of the precipitation that falls on the disposal area and minimize the amount of leachate leaving the site to the soil and groundwater system below the site. The liner must be four feet of natural soil (clay) barrier or a composite liner with two feet of clay and a 60-mil synthetic liner. An

alternative liner system design may be used when approved by the MN agency's commissioner, and is based on the ability of the proposed liner system to control leachate migration, meet performance standards, and protect human health and the environment.

- Illinois requires its landfill liners have at least five feet of clay in a natural soil liner, or three feet of clay and a 60-mil synthetic liner. Alternative liners may be proposed if the landfill operator demonstrates that alternative technology or material provides equivalent or superior performance to the standard requirements, the technology or material has been successfully utilized in at least one application similar to the proposed application, and methods for manufacturing quality control and construction quality control can be implemented.
- Iowa requires liner construction to include two feet of compacted soil with a synthetic liner, and has also approved four foot natural soil (clay) liners. Alternate liner designs may be proposed if evidence is provided that the liner can keep contaminant levels below state standards, as monitored downgradient of waste and within 50 feet of the waste boundary. Iowa code states that it must consider at least the following when approving an alternative liner design: the hydrogeologic characteristics of the facility and surrounding land, the climatic factors of the area, the volume and physical and chemical characteristics of the leachate, the sensitivities and limitations of the modeling demonstrating the applicable point of compliance, and practicable capability of the owner or operator.

- The proposed rule adjusts the license fee surcharge paid to the department based upon the number of tons or equivalent volume of solid waste disposed of at each landfill during each quarterly reporting period (currently 15.0 cents/ton): 25.0 cents/ton effective January 1, 2026, 27.0 cents/ton effective January 1, 2031, and 30.0 cents/ton effective January 1, 2036. These 'tipping fees' are assessed per ton of waste disposed of in Wisconsin landfills and are the only tipping fees in Administrative Code. All other tipping fees, totaling $13/ton when combined, are designated in statute and cannot be impacted by this rule. Revenue from all tipping fees is used at multiple agencies for multiple purposes, including local government recycling grants; programs overseeing air, water, and soil clean up; and general department operations and debt service. The current 15.0 cents/ton license surcharge tipping fee goes directly to the department's Waste and Materials Management Program to cover a portion of general operations expenditures. The rule also proposes updated plan review fees, most of which had not been changed since 2006, for municipal solid waste landfills and industrial solid waste landfills. Together these fees encompass a portion of funding that supports overall solid waste management work being done by the department; additional funds are provided through legislative appropriations in the biennial budget.

  It is difficult to compare funding mechanisms state by state because there are several different methods of assessing fees and determining how the revenue is allocated to one or multiple purposes or programs. The information below does not compare apples-to-apples information with the proposed rules, but is provided for general awareness. Each state is likely to have additional revenues not included here that are also applied to its solid waste work.
  - In Michigan, 36 cents is charged for each ton or portion of a ton of solid waste or municipal solid waste incinerator ash that is disposed of in a landfill. Michigan's governor proposed budget recommendations in early 2024 to increase this solid waste surcharge from $0.36 to $5.00 per ton. This would generate funds for program oversight of contaminated site cleanup, brownfield redevelopment, recycling, and waste management. Other landfill fees found in Michigan law include permit application fees of $3,000 to construct a new landfill, $2,000 to construct a lateral expansion of an existing landfill, and $1,500 for a vertical expansion.

- In Minnesota, waste management services (waste haulers, transfer stations, incinerators, landfills, local governments) collect and submit to the state a solid waste management tax charged for the solid waste services they provide. The tax rate is 9.75 percent of the sales price charged by the service provider for residential waste, and 17 percent for commercial clients. 70 percent of tax collected goes into Minnesota's Environmental Fund and 30 percent goes into the state general fund.
- Illinois does not charge fees for landfill plan reviews or inspections. The only fees are the tipping fees referenced in the Illinois Environmental Protection Act: if more than 150,000 cubic yards of non-hazardous solid waste is permanently disposed of at a site in a calendar year, the total fee per ton is $2.22. The fees provide funding for the delegated county enforcement program, various solid waste collection programs and the related staff support for each, as well as solid waste permitting programs.
- In Iowa, fees are paid on each ton landfilled. The base fee is $4.25 per ton; however, based on penalties and rewards for the landfill's waste diversion efforts, each landfill pays slightly more or slightly less than the base amount. Landfill operators remit a portion of the fee to the state each quarter. The remaining funds are to be used for planning and environmental protection activities at the local level.

9. Summary of Factual Data and Analytical Methodologies Used and How Any Related Findings Support the Regulatory Approach Chosen:

Solid waste landfills in Wisconsin are professionally designed, constructed and operated to minimize the risk of pollution. The department regulates landfills to prevent negative impacts to people and the environment. Landfills must collect and treat liquids and gases they generate before releasing them to the environment. Landfill operators must monitor their facilities to detect any contamination, report monitoring data to the department and respond quickly to any problems. Money is set aside during landfill operation to ensure that monitoring and maintenance continue after the landfill closes. Department staff inspect landfills regularly.

This rule's regulatory approach is to ensure that the above objectives continue to be met.

The changes proposed are based on:

- Subtitle D of the Resource Conservation and Recovery Act (RCRA, 40 CFR Part 258) and chs. 287 and 289, Stats.
- Knowledge and experience of department staff, including waste management engineers, hydrogeologists, and policy specialists.
- Research conducted by the U.S. Environmental Protection Agency and educational institutions.
- Meetings with and comments from this rule's assigned Technical Advisory Committee. The department met with this group six times during 2023 and early 2024 specifically targeted to gather rule proposals and other feedback. Draft code changes were shared throughout the rulemaking process and the Committee provided comments. This was an invaluable exercise to ensure those impacted by proposed rule changes had a voice in the process, understood the reasons for the changes being proposed, and had a direct line to staff for open communication. The Committee consists of solid waste industry association representatives, landfill owners and operators, landfill design consultants, an environmental group representative, and a university representative.
- Advice from the Waste and Materials Management Study Group, a stakeholder working group that provides the Waste and Materials Management Program with constructive feedback on policy and technical issues and works collaboratively with department staff.
- The Alternative Landfill Liner Study that was commissioned by the department in 2021. The

study includes information on liner requirements in other states, approval processes in other states, and models used to assess landfill liner performance and contaminant migration.
- Information gathered from adjacent states on landfill design regulations and solid waste fees.
- Economic impact analyses conducted by the department on potential impacts to private businesses, local governments, and the state economy related to plan review fee changes and license surcharge fee changes that impact all generators of solid waste.

All landfill owners and operators will benefit from updating, clarifying, and codifying regulations related to landfill design and operation, including alternative options for landfill liner and cover, options for including additional waste prior to closure, and easier submittals and lower fees for vertical-only expansions. Many existing policies will be codified in this rule for consistent application of regulations statewide, ensuring an even playing field among competing landfills. The rulemaking process included six meetings with the Technical Advisory Committee to gather ideas. Many changes were made to rule proposals based on Committee feedback.

State residents and businesses can rely on the existence of an efficient system for disposing of solid waste and the protection from risks to public health and the environment that sound implementation of the state solid waste codes provide.

10. Analysis and Supporting Documents Used to Determine the Effect on Small Business or in Preparation of an Economic Impact Report:
Proposed changes to landfill design or operation requirements and fees may result in both economic savings and costs for landfill owners and operators – none of which are small businesses. There are currently 58 active licensed municipal solid waste and industrial landfills and thousands of closed landfills in Wisconsin. State residents and businesses, including small businesses, are indirectly affected by state solid waste management policies and standards because they rely on the existence of an efficient system for disposing of solid waste and the protection from risks to public health and the environment that state solid waste codes provide. Regulations ensure modern landfills are well-engineered and managed for the disposal of solid waste. Landfills are located, designed, operated and monitored to ensure compliance with regulations and to protect the environment from contaminants that may be present in the waste stream.

Portions of the rule may have a positive economic impact on landfill facility owners and operators due to reduced construction costs or other technical and administrative efficiencies. The benefits will likely vary for each landfill based on differences in locally available construction materials and costs across the State. Some landfills may not realize any construction cost changes because of locally available materials. Increased operating costs may be offset by benefits and efficiencies realized from other changes within the proposed rule.

The rule proposes changes to plan review and licensing fees consistent with s. 289.61, Stats., which requires the department adopt by rule a graduated schedule of reasonable license and review fees for solid waste license and review activities at a level anticipated to recover the solid waste program staff review costs. Any impacts from modified fees may be passed on by facility operators to the generators of the waste being managed (businesses, small businesses, municipalities, and residential customers).

Several of the proposed rule changes codify more modern, existing practices now utilized by the industry since the last updates to this code or conditions applied to a majority of landfill design and operations, and therefore have minimal to no economic impact when compared to current conditions. There are also several proposed rule changes that are optional and therefore have minimal to no economic impact unless

the landfill designs are proposed by a landfill in its plan of operations.

Proposed rule changes that would likely have an economic impact were assessed for impacts to privately owned landfills, publicly owned landfills, and to generators of waste—households and businesses in Wisconsin. Some information on costs of materials (leachate pipes, geotextile liners), costs for consultants to conduct plans, and estimates of OFR savings were provided by members of the Technical Advisory Committee. To assess the average impact of proposed fee changes on individual households, information on Wisconsin households was collected from the U.S. Census Bureau. The average impact of proposed fee changes on businesses and small businesses was determined using U.S. Census Statistics of U.S. Businesses provided by the Wisconsin Economic Development Corporation.

Additional information is included in the fiscal estimate and economic impact analysis included with this rule package.

11. Effect on Small Business (initial regulatory flexibility analysis):
The department assumes that no private solid waste landfills operating in Wisconsin meet the definition of a small business under s. 227.114 (1), Stats. (“small business" means a business entity, including its affiliates, which is independently owned and operated and not dominant in its field, and which employs 25 or fewer full-time employees or which has gross annual sales of less than $5,000,000).

In general, there may be minimal economic impact to small businesses in the state because of changes to fees applied to solid waste disposed of in landfills. The definition of “small business” in s. 227.114 (1), Stats., does not match how small businesses are defined by the U.S. Census Statistics of U.S. Businesses, but the data are used here to show the limited impact an increase in landfill license surcharge fees would have on each individual business.

Year after proposed code change	License surcharge fee per ton of waste disposed (a)	Average annual fee collection[1] (b = a * 6,993,185 tons)	Additional fee increase in comparison to current rule (c = b - $1,048,978)	Private Business Impact		
				Total fees borne by business (d = c/2)	Average fee borne per business unit (e = d/ 108,122)[2]	Average fee borne per small business unit (f = e * 86%)[3]
Current rule	$0.15	$1,048,978	-	-	-	-
First year (2026)	$0.25	$1,748,296	**$699,318**	$349,659	$3	$2.80
Second year (2027)	$0.25	$1,748,296	**$699,318**	$349,659	$3	$2.80
Sixth year (2031)	$0.27	$1,888,160	$839,182	$419,591	$4	$3
Eleventh year (2036)	$0.30	$2,097,956	$1,048,978	$524,489	$5	$4

[1] Based on 5-year average tonnage in each category of waste to which the surcharge fee is applied (6,993,185 tons). A majority of waste is reported as “municipal solid waste” that is a mix of household and business waste.
[2]108,122 firms in Wisconsin in 2020 (U.S. Census Statistics of U.S. Businesses)
[3] 86% of all businesses/86% of fees impact; 93,112 firms in Wisconsin with 24 or fewer employees in

2020 (U.S. Census Statistics of U.S. Businesses)

12. Agency Contact Person: Kate Strom Hiorns, Waste and Materials Management Bureau Director, kathrynm.stromhiorns@wisconsin.gov, 608-294-8663

13. Place where comments are to be submitted and deadline for submission:
Written comments may be submitted at the public hearings, by regular mail, or email to:
Kate Strom Hiorns
Department of Natural Resources
P.O. Box 7921, Madison, WI 53707-7921
608-294-8663, kathrynm.stromhiorns@wisconsin.gov

Comments may be submitted to the department contact person listed above or to DNRAdministrativeRulesComments@wisconsin.gov until the deadline given in the upcoming notice of public hearing. The notice of public hearing and deadline for submitting comments will be published in the Wisconsin Administrative Register and on the department's website, at https://dnr.wisconsin.gov/calendar/. Comments may also be submitted through the Wisconsin Administrative Rules Website at https://docs.legis.wisconsin.gov/code/chr/active.

RULE TEXT

SECTION 1. NR 500.03 (11) and (18) are amended to read:

NR 500.03 (11) "Aquifer" means a geologic formation, group of formations, or part of a formation ~~which are~~ that is saturated and can transmit ~~economic~~ usable quantities of groundwater.

(18) "Bedrock" means ~~all rock formations at or beneath the land surface.~~ any naturally formed consolidated or cohesive material of the earth's crust, composed of one or more minerals, rock fragments, or organic material, that underlies any soil or other unconsolidated surficial material or is exposed at the surface.

Note: Bedrock includes limestone (dolomite), sandstone, shale, and igneous and metamorphic crystalline rock, including granite, rhyolite, quartzite, gabbro, basalt, gneiss, schist, diorite, and greenstone.

SECTION 2. NR 500.03 (37) is repealed.

SECTION 3. NR 500.03 (42m) is created to read:

NR 500.03 (42m) "Competent bedrock" means bedrock that is structurally sound and exhibits a minimum of chemical or physical weathering such that it retains its consolidated and cohesive properties.

SECTION 4. NR 500.03 (43) is repealed.

SECTION 5. NR 500.03 (77) is repealed and recreated to read:

NR 500.03 (77) "Expand an existing landfill" means any of the following activities:

(a) To construct a landfill or dispose of solid waste on land not previously licensed or approved by the department.

(b) To extend the lateral or vertical limits of a waste beyond the limits previously approved by the department.

(c) To dispose of an additional volume of waste beyond the volume previously approved by the department.

(d) To dispose of industrial or municipal solid waste in a small or intermediate size construction and demolition waste landfill.

(e) To dispose of municipal solid waste in a landfill licensed or approved only to accept industrial waste.

SECTION 6. NR 500.03 (93g) is created to read:

NR 500.03 (93g) "Gas monitoring well" or "gas probe" means a device used to obtain information regarding soil conditions and gas concentrations in the soil.

SECTION 7. NR 500.03 (120) is amended to read:

NR 500.03 (120) "Landfill" ~~means a land disposal not classified as a landspreading facility or surface impoundment facility, where solid waste is disposed on land by utilizing the principles of engineering to confine the solid waste to the smallest practical area, to reduce it to the smallest practical volume, and to cover it with a layer of earth or other approved material as required.~~ has the meaning specified in s. 289.01 (20), Stats.

Note: Section 289.01 (20), Stats., states "Landfill" means a solid waste facility for solid waste disposal.

SECTION 8. NR 500.03 (123s), (124f), and (126m) are created to read:

NR 500.03 (123s) "Leachate head" means the depth of leachate on the landfill liner.

(124f) "Leachate seep" means a flow or leak of leachate through landfill cover materials. Leachate seeps do not include cap drainage, gas condensate, or leachate seepage through the landfill liner.

(126m) "Limit of disturbance" means the boundary of a solid waste disposal facility within which all construction, materials storage, grading, landscaping, and any other activities related to site preparation, construction, operation, and maintenance occur, including areas disturbed due to the creation

or modification of access roads and the clearing or grubbing of vegetation.

SECTION 9. NR 500.03 (130) is repealed.

SECTION 10. NR 500.03 (141) is amended to read:

NR 500.03 (141) "Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration at the ground surface depicted on a seismic hazard map, with a 90~~%~~ percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

SECTION 11. NR 500.03 (152e) and (156m) are created to read:

NR 500.03 (152e) "Navigable water" has the meaning specified in s. 281.31 (2) (d), Stats.

Note: Section 281.31 (2) (d), Stats. states "Navigable water" or "navigable waters" means Lake Superior, Lake Michigan, all natural inland lakes within this state and all streams, ponds, sloughs, flowages and other waters within the territorial limits of this state, including the Wisconsin portion of boundary waters, which are navigable under the laws of this state.

(156m) "Nurse crop" means a crop planted with another crop to facilitate its growth by providing shelter from competition with undesirable plants and by preventing soil erosion.

SECTION 12. NR 500.03 (160) is amended to read:

NR 500.03 (160) "Operating record" means the record maintained by the owner or operator of a ~~municipal solid waste facility~~ landfill in accordance with ~~Subtitle D, 40 CFR 258.29~~ ss. NR 503.10 (4) (n) and 506.17.

SECTION 13. NR 500.03 (195m) is created to read:

NR 500.03 (195m) "Registered professional surveyor" means a professional land surveyor registered or licensed with the department of safety and professional services.

SECTION 14. NR 500.03 (199) is repealed.

SECTION 15. NR 500.03 (208) is amended to read:

NR 500.03 (208) "Seismic impact zone" means an area with a 10~~%~~ percent or greater probability

that the maximum horizontal acceleration in ~~lithified earth material,~~ bedrock, expressed as a percentage of the earth's gravitational pull, will exceed 0.10g in 250 years.

SECTION 16. NR 500.03 (232m) is created to read:

NR 500.03 (232m) "Technologically enhanced naturally occurring radioactive material waste" or "TENORM waste" means waste containing naturally occurring radioactive materials that have been concentrated or exposed to the accessible environment by the treatment, filtering, storage, or processing of wastewater or groundwater containing naturally occurring radioactive materials.

SECTION 17. NR 500.03 (235) and (242) are repealed.

SECTION 18. NR 500.03 (242m) and (253s) are created to read:

NR 500.03 (242m) (a) "Underdrain system" means a subsurface drainage system installed below the landfill liner to maintain the maximum elevation of the groundwater under the liner system during projected seasonal high groundwater conditions.

(b) "Underdrain system" includes a gradient control system operating on the effective date of this section [LRB inserts date] if the system is installed below the landfill liner and designed to control the seasonal high groundwater table.

(253s) "Vertical-only expansion" means a landfill expansion that is located completely within previously approved limits of filling and that raises the approved final waste grades but does not extend the landfill laterally.

SECTION 19. NR 500.05 (1), (3), and (6) (i) are amended to read:

NR 500.05 (1) REVIEW FEE. The appropriate review fee specified in s. NR 520.04 shall be identified. The department will send an invoice for the plan review fee to the contact for the facility upon receipt of the submittal. Payment in check or money order shall be sent to the department's bureau of finance within 30 days after receipt of the invoice. Submittals requiring review fees shall be considered incomplete until the correct review fee is received by the department.

(3) PAPER AND ELECTRONIC COPIES. ~~Unless otherwise specified, 4 paper copies and one electronic copy~~ Electronic copies of the plan or report prepared pursuant to the appropriate section of chs. NR 500 to 538, and ~~an additional~~ electronic ~~copy~~ copies of any plan sheets or drawings submitted as a part of the plan or report. ~~Three paper copies~~ The electronic copies shall be submitted to the department's ~~field office~~ review staff responsible for the area in which the facility is located and ~~one paper copy, one~~

~~electronic copy, and the additional electronic copy of associated plans or drawings shall be submitted to the bureau of waste management in Madison unless otherwise specified by the department. The complete electronic copy of the report and the separate electronic copy of any plan sheets or drawings~~ shall be provided in formats and on media ~~acceptable to~~ specified by the department. Paper copies of the plan or report including any plan sheets or drawings shall be provided to the department upon request of the department. The department may request multiple paper copies.

(6) (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 containing a survey grid shall be included on the sheets with the cross-sections.

SECTION 20. NR 500.055 and 500.058 are created to read:

NR 500.055 General submittal requirements for surveying. Unless otherwise approved by the department in writing, annual topographic surveys of a landfill and surveys of landfill boundaries, environmental monitoring devices and other features as requested by the department shall be conducted by a professional land surveyor or by a qualified technician who is directly supervised by a professional land surveyor. The department may request reports and plan sheets be under the seal of a professional land surveyor.

NR 500.058 General submittal requirements for endangered or threatened species. The names of endangered or threatened species that have been identified on a property in an endangered resources review shall be omitted from all reports and documents submitted to the department, with the exception that a copy of the endangered resources review associated with a report or document shall be submitted as a separate, stand-alone document with a cover letter identifying the associated report or document to the department.

SECTION 21. NR 500.065 (1) and (2) are amended to read:

NR 500.065 (1) INITIAL APPLICATIONS. The department shall make a determination on an initial application for a solid waste facility license within ~~65 business~~ 90 days of receipt of all of the information specified in s. NR 500.06. If a determination is not made on the application within ~~65 business~~ 90 days, the department shall refund the license application fee paid by the applicant.

(2) RENEWALS. The department shall make a determination on a license renewal application for a solid waste facility license within ~~65 business~~ 90 days of receipt of all of the information specified in s. NR 500.06, or by the end of the current license period, whichever occurs later. If a determination is not made within these time constraints, the department shall refund the license renewal application fee paid

by the applicant.

SECTION 22. NR 500.07 is amended to read:

NR 500.07 Review times. Except as otherwise provided in chs. NR 500 to 538, the department shall review and approve, deny or deem incomplete requests for plan approvals or exemptions within ~~65 business~~ 90 days after receiving the request. For the purposes of determining department compliance with review times specified in chs. NR 500 to 538 and ch. 289, Stats., the review time starts when the appropriate copies and review fee are received.

SECTION 23. NR 500.08 (4) is amended to read:

NR 500.08 (4) EXEMPTIONS FROM SOLID WASTE RULES. Exemptions from the requirements of chs. NR 500 to 538 may be granted in writing by the department in special cases except as otherwise provided. A person may apply for an exemption by providing the department with a written request along with the appropriate documentation that demonstrates that the proposal will not cause environmental pollution as defined under s. 299.01 (4), Stats. The department shall take into account such factors as the population of the area being served, the amount of waste being generated, the geologic and hydrogeologic conditions at the facility, the design of the facility, the operational history of the facility, the physical and chemical characteristics of the waste, and any other information that may be appropriate. The department shall review and make a written determination on the exemption request within ~~65 business~~ 90 days after receipt of a complete request and the appropriate review fee under ch. NR 520 unless a different time period is provided by law. An exemption may not be granted if it will result in noncompliance with the minimum federal requirements under Subtitle D.

SECTION 24. NR 502.04 (1) (a) 2. and (1) (b) are amended to read:

NR 502.04 (1) (a) 2. A significant adverse impact ~~on wetlands as provided in~~to wetland functional values as determined by the department in accordance with ch. NR 103.

(1) (b) Exemptions from the requirements of par. (a) 4. to 6. may be granted by the department only upon demonstration by the applicant of circumstances ~~which~~ that warrant the exemption. Exemptions from compliance with par. (a) 3. may be granted only according to the procedures in ch. NR 140. Exemptions from compliance with par. (a) 2. may be granted only in accordance with the procedures and standards in ch. NR 103. Exemptions from compliance with par. (a) 1. may not be granted.

SECTION 25. NR 503.04 (3) (a) is amended to read:

NR 503.04 (3) (a) A significant adverse impact ~~on wetlands as provided in~~to wetland functional values as determined by the department in accordance with ch. NR 103.

SECTION 26. NR 503.07 (3) is amended to read:

NR 503.07 (3) DEPARTMENT RESPONSE**.** The department shall conduct an initial site inspection within ~~22 business~~ 30 days of receipt of the request and the information required in this section. Follow up inspections may be necessary depending on the season to identify any obscured features of the proposed property such as wetlands. The department shall render a preliminary opinion regarding the suitability of the site location and identify any additional studies or information that must be submitted to determine if a proposed landfill or soil borrow source complies with the applicable locational criteria and performance standards of s. NR 503.04 within ~~22 business~~ 30 days of completing the inspection. A favorable evaluation under this section does not guarantee a favorable initial site report opinion.

SECTION 27. NR 503.09 (1) is amended to read:

NR 503.09 (1) PUBLIC NOTICE. The applicant for a small size construction and demolition waste landfill shall publish a public notice in the local newspaper and send written notification to residents within ~~1200~~ 1,200 feet of the proposed landfill footprint. The notice and notification shall identify the applicant's name, business address and phone number; the location, design capacity, and anticipated operational life of the proposed landfill; and the name, address and telephone number of the department representative to whom public comments may be submitted orally or in writing. Copies of both the proposed public notice and the notification to residents shall be provided to the department office located in the region of the proposed landfill prior to submission to the newspaper for publication. Documentation that the public notice and resident notification requirements were met shall be provided in the plan of operation under this subsection.

SECTION 28. NR 503.09 (6) Table 1 is amended to read:

Table 1
Groundwater Sampling ~~For~~ for Small Size Construction & Demolition Waste Landfills

Parameters for Detection and Baseline Groundwater Sampling	Parameters for Baseline Groundwater Sampling Only
Field Conductivity	Arsenic
Field pH	Barium
Alkalinity	Cadmium
Chloride	Chromium
~~COD~~	Cyanide

Hardness	Lead
Sulfate	Manganese
Groundwater elevation	Mercury
	Selenium
	Zinc
	VOCs

SECTION 29. NR 503.10 (1) (d) and (7) (bg) are amended to read:

NR 503.10 (1) (d) The applicant shall provide a letter of notification to the clerk of all townships and municipalities in which the landfill is to be located and all townships and municipalities located within ~~1200~~ 1,200 feet of the proposed waste limits which includes the information required in par. (a).

(7) (bg) Baseline groundwater quality for VOCs shall be established for all VOCs listed in ch. NR 507 Appendix III, at all monitoring wells ~~outside the proposed limits of filling~~.

SECTION 30. NR 503.10 (7) Table 3 and Table 4 are amended to read:

Table 3
Groundwater Sampling for Intermediate Size Construction & Demolition Waste Landfills

Parameters for Detection and Baseline Groundwater Sampling	Parameters for Baseline Groundwater Sampling Only
Field Conductivity	Arsenic
Field pH	Barium
Alkalinity	Cadmium
Chloride	Chromium
~~COD~~	Cyanide
Hardness	Lead
Sulfate	Manganese
Groundwater elevation	Mercury
	Selenium
	Zinc
	VOCs

Table 4
Leachate Sampling for Intermediate Size Construction & Demolition Waste Landfills

Monthly Leachate Sampling	Semi-Annual Leachate Sampling for 2 years	Annual Leachate Sampling following first 2 years
Leachate Volume Pumped	Field Conductivity	Field Conductivity
	Field pH	Field pH
	Alkalinity	Alkalinity
	Ammonia Nitrogen	Ammonia Nitrogen
	$BOD_{5\text{-day}}$	$BOD_{5\text{-day}}$
	Cadmium	Cadmium
	Chloride	Chloride
	~~COD~~	~~COD~~
	Hardness	Hardness
	Iron	Iron
	Lead	Lead
	Manganese	Manganese
	Mercury	Mercury
	Sodium	Sodium
	Sulfate	Sulfate
	Total ~~kjeldahl~~ Kjeldahl nitrogen	Total ~~kjeldahl~~ Kjeldahl nitrogen
	Total suspended solids	Total suspended solids
	VOCs	VOCs

SECTION 31. NR 504.02 (1) (b) 1. is amended to read:

NR 504.02 (1) (b) 1. Landspreading facilities regulated under ch. NR 518, small size construction and demolition waste landfills regulated under ch. NR 503, and hazardous waste facilities as defined under s. 291.01 (8), Stats., and regulated under chs. NR 660 to 679.

SECTION 32. NR 504.04 (2) is repealed and recreated to read:

NR 504.04 (2) EXEMPTIONS. (a) Exemptions from compliance with subs. (3) (a), (b), (d), (e), (f),

(g), (h), and (i) and (4) (b), (e), and (f) may be granted by the department only upon demonstration by the applicant of circumstances that warrant an exemption.

(b) Compliance with sub. (4) (a) shall be evaluated in accordance with the procedures and standards in ch. NR 103. For the purpose of determining whether there is a practicable alternative to a proposed landfill expansion under s. NR 103.08, the department may allow an applicant to limit its analysis of alternatives to alternatives within the boundaries of the property where the existing landfill is located and on property immediately adjacent to the existing landfill.

(c) Exemptions from compliance with subs. (3) (c) and (4) (c) may not be granted.

(d) Exemptions from compliance with sub. (4) (d) may be granted only according to the procedures set forth in chs. NR 140 and 507.

(e) Exemptions from compliance with sub. (3) (f) will be based on an evaluation of the information contained in par. (g). However, no exemptions from sub. (3) (f) may be granted unless information on the well location, well owner, well driller, well log and construction details, the general hydrogeologic setting, and a completed s. NR 812.43 variance request is submitted to the department. The department may accept televising and downhole geophysical logging if the well driller and well log and construction details are not available. Exemptions from sub. (3) (f) shall be requested by the applicant and re-evaluated for each subsequent expansion proposal.

(f) Exemptions from sub. (3) (i) may be granted only if the applicant demonstrates that engineering measures have been incorporated into the landfill's design to ensure that the integrity of the structural components of the landfill will not be disrupted.

Note: Contact the groundwater expert or water supply specialist in the local DNR office to obtain a list of the current requirements for a completed s. NR 812.43 variance request. To determine who is the appropriate contact in a particular part of the state either call (608) 266-0821 or e-mail the Drinking Water and Groundwater program at DG.Mail@dnr.state.wi.us. The s. NR 812.43 well variance application should be submitted within 10 days after a feasibility report is deemed complete so that the department can make a decision on the variance application in conjunction with the feasibility determination.

(g) Additional factors which may be considered by the department in determining whether or not to grant exemptions under this section include waste types, characteristics and quantities; the geology and hydrogeology of the landfill; the proposed landfill design and operation; the availability of other environmentally suitable alternatives; status of the s. NR 812.43 variance application; compliance with other state and federal regulations and the health, safety and welfare of the public. Requests for exemptions and information needed to demonstrate the circumstances that warrant exemptions shall be addressed by the applicant in the feasibility report.

SECTION 33. NR 504.04 (3) (intro.) and (d) are amended to read:

NR 504.04 (3) LOCATIONAL CRITERIA. No person may establish, construct, operate, maintain or permit the use of property for a landfill, except for a vertical-only expansion of a landfill, where the limits of filling are or would be within any of the following areas:

(d) Within 1,000 feet of the nearest edge of the right-of-way of any state trunk highway, interstate or federal aid primary highway or the boundary of any public park, ~~or~~ state natural area, or state, federal, or public trail, unless the landfill is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway, park or natural area.

SECTION 34. NR 504.04 (3) (e) (intro.) and 1. are consolidated, renumbered NR 504.04 (3) (e) and amended to read:

NR 504.04 (3) (e) Within an area where the design or operation of the landfill would pose a significant bird hazard to aircraft.

~~1.~~ A landfill ~~which~~ that is proposed to be located within 10,000 feet of any airport runway end designed or planned to be designed and used by turbojet aircraft or within 5,000 feet of any airport runway end designed for and used only by piston type aircraft and which is proposed to be used for the disposal of putrescible waste shall be presumed to pose a significant bird hazard to aircraft unless the applicant can demonstrate to the satisfaction of the department that the landfill will not pose a significant bird hazard to aircraft.

SECTION 35. NR 504.04 (3) (e) 2. is repealed. Retain existing note.

SECTION 36. NR 504.04 (3m) is created to read:

NR 504.04 (3m) LOCATIONAL CRITERIA FOR VERTICAL-ONLY EXPANSION. No person may establish, construct, operate, maintain, or permit the use of property for a vertical-only landfill expansion where the limits of filling are, or will be, within the areas listed in sub. (3) (d), (e), and (f). The department may require evaluation of locational criteria in sub. (3) (a), (b), (c), (g), (h), and (i).

SECTION 37. NR 504.04 (4) (a) and (c) are amended to read:

NR 504.04 (4) (a) A significant adverse impact ~~on wetlands as provided in~~ to wetland functional values as determined by the department in accordance with ch. NR 103.

(c) A detrimental effect on ~~any~~ surface ~~water~~ waters as defined in s. NR 102.03 (7).

SECTION 38. NR 504.05 (1) is amended to read:

NR 504.05 (1) Unless otherwise specified in this chapter, the minimum design criteria in ss. NR 504.06 to 504.09 apply to all new landfills and to the expansion of existing landfills ~~for which the plan of operation was approved after July 1, 1996, as well as to proposed design changes for all landfills which are submitted after July 1, 1996~~. Landfills designed in substantial conformance with these design criteria are presumed to be capable of meeting the performance standards of s. NR 504.04 (4) (d) regarding groundwater quality.

SECTION 39. NR 504.06 (1) (a) is amended to read:

NR 504.06 (1) (a) All major phases of landfills ~~initially~~ accepting municipal solid waste ~~after July 1, 1996,~~ shall be designed, constructed, operated, and maintained with a composite liner and a leachate collection system capable of limiting the ~~average~~ leachate head level on the composite liner to one foot or less, at all locations except the leachate sump, during operation and after closure of the landfill, except as provided in s. NR 504.10 (1) (c). The composite liner shall consist of 2 components; the upper component shall consist of a nominal 60-mil or thicker geomembrane liner with no thickness measurements falling below the minimum industry accepted manufacturing tolerances, and, except as provided under s. NR 504.065, the lower component shall consist of a minimum 4-foot thick layer of compacted clay meeting the specifications of s. NR 504.06 (2) (a). The geomembrane component shall be installed in direct and uniform contact with the compacted clay soil component, and the landfill shall meet or exceed the standards in the applicable portions of subs. (2), (2m), (3), and (4). All other landfills shall be designed to contain and collect leachate to the maximum practical extent. This shall be accomplished by designing the landfill to meet the standards contained in the applicable portions of subs. (2), (2m), (3), and (4), unless the department approves the applicant's alternative design as ~~per~~ provided under s. NR 504.10, which provides an equivalent or better level of performance than the standards contained in this chapter.

SECTION 40. NR 504.06 (2) (b) and (c) are repealed.

SECTION 41. NR 504.06 (2) (f) 1. is amended to read:

NR 504.06 (2) (f) 1. All clay layers in the liner shall be constructed in lift heights no greater than 6 inches after compaction using footed compaction equipment having feet at least as long as the loose lift height. As needed, clay shall be disked or otherwise mechanically processed prior to compaction to break up clods and allow for moisture content adjustment. Clod size shall be no greater

than 4 inches. All compaction equipment utilized shall have a minimum static weight of 30,000 pounds. Lighter equipment may be used in small areas where it is not possible to use full size equipment. Alternative procedures or equipment may be proposed for written approval by the department.

SECTION 42. NR 504.06 (2m) is created to read:

NR 504.06 (2m) SEPARATION DISTANCES FOR COMPOSITE-LINED OR CLAY-LINED LANDFILLS. This section does not apply to zone of saturation landfills approved under NR 504.06 (4). (a) The separation distance between the seasonal high groundwater table and the bottom of the clay component of a composite liner or a clay liner shall be at least 10 feet unless the addition of an underdrain system is approved by the department in writing. The underdrain system shall be designed to maintain the projected seasonal high groundwater table below the bottom of the clay component of the liner at all locations under gravity drained conditions, excluding the sumps and leachate line undercuts. The underdrain system shall be designed to maintain the projected seasonal high groundwater table below the top of the clay component of the liner in the sump areas and below the leachate line undercuts under gravity drained conditions.

(b) The separation distance between the top of the competent bedrock surface and the bottom of the clay component of a composite liner or a clay liner shall be at least 10 feet unless otherwise approved by the department in writing.

SECTION 43. NR 504.06 (3) (e) is amended to read:

NR 504.06 (3) (e) Geomembrane panels made of polyethylene resins shall be welded by double-tracked, fusion welding machines for all linear seams. Corners, butt seams, and long repairs shall be fusion welded where possible. Extrusion or fusion welding shall be used for all other repairs, detail work, and patches. ~~Department~~ Written department approval shall be obtained prior to use of any other welding method for either panel seaming, repairs, or construction of details.

SECTION 44. NR 504.06 (4) (a) (Note) is repealed.

SECTION 45. NR 504.06 (5) (a), (c), (dm), (e), (q), and (t) are amended to read:

NR 504.06 (5) (a) A leachate collection system shall be included in each horizontal phase of the landfill. This system shall be designed to route leachate to the perimeter of the landfill in the most direct manner possible and limit the ~~average~~ leachate head level on the liner to one foot or less. The piping layout shall be such that leachate flows no more than 130 feet across the base of the liner before encountering a perforated leachate collection pipe. The department will consider greater flow distances

for ~~well designed~~ composite-lined landfills that have a slope of the liner surface greater than the minimum slope required under s. NR 504.06 (2) (d).

(c) The minimum inside diameter of all leachate collection or transfer pipes shall be 6 inches. Schedule 80 PVC pipe, HDPE pipe, or an approved substitute shall be used.

(dm) A geotextile shall be used to line the base and sidewalls of all leachate collection trenches and shall be placed directly over the geomembrane component of a composite liner or the clay component of a clay liner. The geotextile shall have a minimum weight of ~~12~~ 16 oz/yd^2, and may not be overlapped over the top of the trench. The geotextile specifications, including manufacturer's data for grab and puncture strength, shall be used to demonstrate that the geotextile can resist damage due to impact and puncture when aggregate is placed over the geotextile.

(e) The bedding material utilized in backfilling the leachate collection pipe trenches shall have a uniformity coefficient of less than 4, a maximum particle diameter of ~~1½~~ 1.5 inches, and a maximum of 5~~%~~ percent of the material which passes the number 4 sieve, and shall consist of rounded to subangular gravel. A minimum depth of 4 inches of gravel shall be placed in the trenches prior to installation of the leachate pipes. The backfill shall also be placed such that a minimum of 6 inches of material exists above the top of the pipe and within the trenches. An additional 12 inches of material shall be mounded above the trench. In cases ~~where~~ when the particle size of the drainage blanket is significantly less than the collection trench bedding, a properly designed graded soil filter or geotextile shall be utilized to minimize the migration of the drainage blanket material into the collection trenches. Limestone and dolomite may not be used in the leachate collection system unless no other suitable material is reasonably available.

(q) All manholes and enclosed structures for leachate and gas control systems shall be designed to allow for proper venting and access control. For landfills designed with active gas ~~recovery~~ extraction systems, these devices shall be designed to minimize air intrusion into the landfill.

(t) A minimum one-foot thick granular drainage blanket shall be placed on top of the geomembrane component of a composite liner and on top of the clay component of a clay liner. For composite-lined landfills, if the drainage blanket contains gravel greater than ~~1/4~~ 0.25 inch, then a nonwoven geotextile shall be installed below the drainage blanket. The geotextile shall have a minimum weight of ~~12~~ 16 oz/yd^2 and shall be certified to be needle-free. The granular drainage blanket shall contain no more than 5~~%~~ percent material by weight which passes the number 200 sieve.

SECTION 46. NR 504.065 is created to read:

NR 504.065 Alternative composite landfill liner design. (1) An applicant may propose an alternative to the liner design requirements under s. NR 504.06 (2) if the landfill meets the requirements

of s. NR 504.06 (2m) and s. NR 504.06 (3) or (4).

(2) The proposed alternative liner shall consist of, from bottom to top, a prepared soil sub-base component, a clay layer component, and a nominal 60-mil or thicker geomembrane liner component. The design of the proposed alternative shall meet all of the following requirements:

(a) The prepared soil sub-base component of the liner shall meet the following requirements:

1. Maintain a minimum thickness of one foot at all locations.

2. Consist of a soil having a hydraulic conductivity of $1x10^{-6}$ cm/sec or less with a maximum particle size of 4 inches.

3. A sufficient number of passes of the compaction equipment shall be made over each lift during construction to ensure complete remolding of the soil. All compaction equipment used to construct the prepared soil sub-base shall have a minimum static weight of 30,000 pounds. The prepared sub-base soil shall be constructed to prevent mixing the soil with other in-situ sub-base soil or with underdrain system soil and may be constructed in a single one-foot lift.

4. All sub-base soil shall be compacted to 90 percent modified or 95 percent standard Proctor density at a moisture content at least 2 percent wet of optimum if using the modified Proctor method and wet of optimum if using the standard Proctor method, based on the characteristics of the appropriate Proctor curve for the soil being placed. As soil placement proceeds, the minimum density and moisture content targets shall be adjusted as necessary.

5. If the native in-situ soils meet the requirements of subds. 1. and 2., and the design does not include an underdrain system, the native in-situ soils may be used as the prepared sub-base component in the alternative liner design.

(b) The clay component of the alternative liner shall meet the following requirements:

1. All clay used in liner construction shall meet the specifications of s. NR 504.06 (2) (a).

2. The minimum thickness of the clay component at the base of the landfill, shall be at least 3 feet except as provided under 3. and 4.

3. The minimum thickness of the clay component of the sloped interior sidewalls of the landfill shall be at least 2 feet.

4. The minimum thickness of the clay component of the leachate collection sump required by s. NR 504.06 (5) (j) shall be at least 4 feet at the bottom and all sides of the sump up to the top of the sump.

5. The clay component of the liner shall be constructed as required by s. NR 504.06 (2) (d) and (f).

(c) The geomembrane component shall meet the requirements of s. NR 504.06 (3).

(d) The leachate collection system shall be designed as required by s. NR 504.06 (5), except that all leachate collection or transfer pipes shall have a minimum 6-inch inside diameter.

(e) In addition to the leachate collection system required in par. (d), a minimum 6-inch inside diameter perforated leachate collection pipe shall be placed at the toe of the 3 horizontal to one vertical interior sidewalls of the landfill with cleanout access as required by s. NR 504.06 (5) (g).

(3) An owner or operator of a landfill proposing an alternative liner design that uses native in-situ soils as the prepared sub-base component and does not include an underdrain system shall investigate subsoils on a 100-foot grid to a minimum depth of 2 feet below the sub-base grades of the liner to determine the degree and extent of sand seams, peat, or other unsuitable soils. All sand seams, peat, or other unsuitable soils found as a result of the investigation or encountered during construction shall be removed and replaced with compacted soil meeting the requirements of subs. (2) (a) 2., 3., and 4., provided the landfill is not a zone-of-saturation design. If the proposed landfill is a zone-of-saturation design, then the owner or operator shall investigate subsoils and replacement as specified in s. NR 504.06 (4) (d) with the replacement of soil in the upper 2 feet also meeting the requirements of subs. (2) (a) 2., 3., and 4.

(4) In accordance with this section, the owner or operator of a landfill may propose an alternative liner system design in the feasibility report required under ch. NR 512 or as a modification to an existing plan of operation. This plan modification request may not increase the approved design capacity of the landfill or change the limits of filling. Plan modification submittals shall adhere to the following schedule:

(a) Landfills constructing a liner in 2026 may submit a plan modification in 2025.

(b) Landfills constructing a liner in 2027 may submit a plan modification in 2026.

(c) Landfills constructing a liner in 2028 or after may submit a plan modification in 2027 or later.

SECTION 47. NR 504.07 (1) (b) and (c), (4) (a) 14., and (7) are amended to read:

NR 504.07 (1) (b) All new landfills and expansions of existing landfills shall be designed with a final cover system meeting the requirements in subs. (2) to (9) unless it is established to the satisfaction of the department that portions of the final cover system are not needed based on the proposed waste types and the proposed design or if the final cover system is for a municipal solid waste landfill and meets all requirements under s. NR 504.073. The geomembrane component in sub. (5) does not apply to landfills designed exclusively for the disposal of ~~high volume~~ high-volume industrial waste, or to other landfills ~~which~~ that are not designed to accept municipal solid waste unless the landfill is composite lined.

(1) (c) Any phases of an existing landfill ~~which~~ that have been designed and constructed with a

composite liner shall be designed and constructed with a final cover system meeting the requirements ~~in~~ under subs. (2) to (9)~~, except that the requirement for the geomembrane layer in sub. (5) does not apply to composite lined phases of existing landfills which have completed final cover placement by July 1, 1996~~.

(4) (a) 14. A sufficient number of passes of the compaction equipment shall be made over each lift to ensure complete remolding of the soil. All compaction equipment utilized shall have a minimum static weight of 30,000 pounds. Compaction equipment with static weight that exceeds 15,000 pounds may be utilized ~~where~~ when it utilizes vibration to achieve dynamic compaction that exceeds 30,000 pounds of compaction energy. Lighter equipment may be used in small areas where it is not possible to use full size equipment. Alternative procedures or equipment may be proposed for written approval by the department.

(7) TOPSOIL. A minimum of 6 inches of topsoil shall be designed over the cover layer to support the proposed vegetation. Fertilizer and lime shall be added in accordance with ~~section 630, Wisconsin~~ Section 629 of the latest edition of the department of transportation standard specifications for ~~road and bridge~~ highway and structure construction or other appropriate specifications in order to establish a thick vegetative growth.

SECTION 48. NR 504.07 (8) is renumbered NR 504.07 (8) (intro.) and amended to read:

NR 504.07 (8) (intro.) REVEGETATION. The landfill owner or operator shall propose the seed type and amount of fertilizer to be applied ~~shall be proposed~~ ~~depending on~~ that is compatible with the type and quality of topsoil ~~and compatibility with both~~, the native vegetation and the final use. Application rates for fertilizer and mulch shall also be specified. Unless otherwise approved by the department in writing, seed mixtures and sowing rates shall include one of the following: ~~be those specified for right-of-ways according to section 630, 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and the 2004 supplemental specifications. Application rates for fertilizer and mulch shall also be specified.~~

SECTION 49. NR 504.07 (8) (a) to (c) are created to read:

NR 504.07 (8) (a) A grass seed mixture and sowing rates based on those specified for a highway right-of-way according to Section 630 of the latest edition of the department of transportation standard specifications for highway and structure construction.

(b) A native seed mixture and sowing rates based on those specified for a highway right-of-way in Table 630-2 of Section 630 of the latest edition of the department of transportation standard

specifications for highway and structure construction. A native seed mixture submittal shall, at a minimum, include all of the following information:

1. The rate of application, method of application, and anticipated timeline for vegetation to become established enough to prevent erosion of the topsoil.

2. The nurse crop, cover crop, and erosion control measures that will be used if the native vegetation is anticipated to take more than one year to become established.

3. A maintenance plan for ensuring the health and viability of the native seed mix, including specific methods for preventing the establishment of woody vegetation and Wisconsin terrestrial invasive species and specifying that mowing for routine maintenance shall occur outside the primary nesting bird season of June 1 through August 31.

(c) An alternative native seed mixture that includes the scientific name of all species within the alternative native seed mixture and the information required under s. NR 504.07 (8) (b) 1. to 4. The alternative seed mixture may not include plant species that are considered a regulated terrestrial invasive species in Wisconsin or require burning as a maintenance practice.

SECTION 50. NR 504.07 (8) (Note) and (9) (c) are amended to read:

NR 504.07 (8) Note: The ~~2003~~ latest edition of the ~~Wisconsin~~ department of transportation standard specifications for highway and structure construction and any annual supplemental specifications are available at ~~http://www.dot.wisconsin.gov/business/engrserv/procedures.htm~~ https://wisconsindot.gov/pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/stndspec.aspx or can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707-7921, ~~(608) 266-2111, waste.management@dnr.state.wi.us~~ dnrwastemanagement@wisconsin.gov. Copies are also available for inspection at the offices of the legislative reference bureau and the secretary of state.

(9) (c) Excavation or disturbance of the final cover or any waste materials.

SECTION 51. NR 504.073 is created to read:

NR 504.073 ALTERNATIVE FINAL COVER DESIGN FOR MUNICIPAL SOLID WASTE LANDFILLS. All new municipal solid waste landfills and expansions of existing municipal solid waste landfills shall meet all of the requirements under s. NR 504.07 unless the owner demonstrates to the satisfaction of the department that the final cover system is designed to adequately protect public health, welfare, and the environment and meets all of the following criteria:

(**1**) DESIGN. (a) The final cover system shall include a grading layer meeting all of the

requirements under s. NR 504.07 (2).

(b) The permeability of the final cover system shall be no greater than the permeability of the landfill's liner system or 1 x 10^{-7} cm/second, whichever is lower.

(c) The final cover system shall include a layer that achieves an equivalent reduction in infiltration as the layers specified under s. NR 504.07 (4).

(d) The disruption of the integrity of the final cover system shall be minimized through a design that accommodates settling and subsidence.

(e) The final cover system shall include an erosion-prevention layer that provides equivalent protection from wind or water erosion as the topsoil layer and vegetation specified under s. NR 504.07 (7) and (8).

(f) The final cover system shall meet the requirements of s. NR 504.07 (9).

(2) SUBMITTAL. The owner or operator of a landfill may propose an alternative final cover design in the feasibility report required under ch. NR 512 or as a modification to an existing plan of operation. Plan modification submittals shall adhere to the following schedule:

(a) Landfills constructing final cover in 2026 may submit a plan modification in 2025.

(b) Landfills constructing final cover in 2027 may submit a plan modification in 2026.

(c) Landfills constructing final cover in 2028 or after may submit a plan modification in 2027 or later.

SECTION 52. NR 504.075 (3), (4) (b), and (9) are amended to read:

NR 504.075 (3) INITIAL SITE INSPECTION. An initial site inspection shall be conducted in accordance with s. NR 509.04 for each proposed soil borrow source unless a storm water discharge permit has been obtained by the landfill owner or operator for each soil borrow source location.

(4) (b) Submittals for soil borrow sources shall include site–specific surface water drainage patterns and significant hydrologic features such as surface waters, springs, drainage divides and wetlands; areas of special natural resource interest; and historical or archaeological areas within and adjacent to the proposed limits of excavation. Applicable documentation including endangered or threatened species reviews, historic and archeological site reviews, wetland delineation reports, and permits required under chs. NR 151 and 216, and chs. 30 and 281, Stats. shall be included in each submittal for a soil borrow source request.

(9) ~~STORMWATER~~ STORM WATER MANAGEMENT. Submittals for soil borrow sources shall include a ~~stormwater~~ storm water management plan that complies with the requirements of s. NR 504.09 (1) (a) to (f) and (h) to (j), unless the soil borrow source is subject to other permits with equivalent

authority and requirements, such as a ~~stormwater~~ storm water discharge permit or non-metallic mining reclamation permit.

SECTION 53. NR 504.08 (1) and (2) (intro.) are amended to read:

NR 504.08 (1) GENERAL. All landfills accepting wastes with the potential to generate gas shall be designed to prevent the migration of explosive gases and reduce the emission of greenhouse gases generated by the waste fill.

(2) ACTIVE GAS EXTRACTION AND TREATMENT. In order to efficiently collect and combust hazardous air contaminants, all landfills ~~which~~ that accept municipal solid waste shall be designed and operated with an active gas ~~recovery~~ extraction system. All gas ~~recovery~~ extraction systems shall include all of the following design features, unless otherwise approved by the department:

SECTION 54. NR 504.08 (2) (o) is created to read:

NR 504.08 (2) (o) The system shall be designed to have the ability to perform gas extraction if required under s. NR 506.07 (4g).

SECTION 55. NR 504.09 (1) (j), (2) (f), and (2) (i) are amended to read:

NR 504.09 (1) (j) Design of all storm water management features shall comply with other applicable requirements ~~of the department. Such requirements include, but are not limited to, ch. NR 103 and permits required by ch. 30, Stats~~.

(2) (f) A minimum separation distance of 100 feet shall be maintained between the limits of filling and adjacent property line. A minimum distance of 50 feet shall be maintained between any permanent berms or excavations associated with the landfill, excluding storm water diversion structures and screening berms, and the adjacent property line.

(2) (i) A minimum of 2 leachate head wells shall be proposed for each ~~major~~ horizontal phase of the landfill unless otherwise approved by the department in writing.

SECTION 56. NR 504.09 (2) (L) is created to read:

NR 504.09 (2) (L) A minimum separation distance of 50 feet shall be maintained between the limits of disturbance and a delineated wetland boundary unless otherwise approved by the department in writing.

SECTION 57. NR 504.10 (1) (a), (3) (intro.), and (4) are amended to read:

NR 504.10 (1) (a) An applicant may ~~design a high volume industrial waste landfill to meet the standards contained in~~ propose an alternative to the requirements under ss. NR 504.05 to 504.09 ~~or may propose an~~ if the proposed alternative design ~~in accordance with the provisions~~ meets the requirements of this section.

(3) DESIGN CRITERIA. An applicant seeking approval of an alternative design under this section shall demonstrate in the feasibility report required in ch. NR 512 that the alternative design adequately protects public health, welfare and the environment ~~and meets or exceeds the location and performance standards of s. NR 504.04~~. The applicant may include the following types of information as a part of such a demonstration:

(4) APPROVAL CRITERIA. The department shall approve the alternative design proposed by the applicant if the department determines to a reasonable degree of certainty that the alternative design adequately protects public health, welfare and the environment ~~and meets or exceeds the location and performance standards of s. NR 504.04~~.

SECTION 58. NR 506.05 (1) is amended to read:

NR 506.05 (1) MUNICIPAL SOLID WASTE. All solid waste disposed in a municipal solid waste landfill shall be compacted and completely covered at the end of each operating day with a compacted layer of at least 6 inches of soil. Alternate daily cover materials may be approved or mandated by the department as required in s. NR 506.055. ~~If clay soil is used for daily cover purposes, it~~ Any daily or alternate daily cover materials that may inhibit the movement of gas or leachate shall be scarified or removed prior to placement of the next lift of solid waste.

SECTION 59. NR 506.055 (3) is amended to read:

NR 506.055 (3) GENERAL APPROVAL FOR THE USE OF ALTERNATE DAILY COVER. The department may issue general written approvals for use of specific alternate daily cover materials ~~which~~ that have been demonstrated to control disease vectors, fires, odors, blowing litter and scavenging without presenting a threat to human health and the environment. The department may prohibit or limit the use of alternate daily cover materials at any time if the department determines that use of the alternate materials results in nuisance conditions or a negative effect on landfill performance.

SECTION 60. NR 506.06 is amended to read:

NR 506.06 Intermediate cover. Unless otherwise approved by the department in writing, any

portion of a landfill ~~which~~ that has been used for solid waste disposal but will not receive additional solid waste for a period exceeding 6 months shall be covered with a minimum of one foot of ~~fine grained~~ soil intermediate cover or other material approved by the department in writing. Intermediate cover material shall have no large objects that may obstruct compaction of the soil. ~~A specific soil type may be specified by the department for this one foot layer.~~ The intermediate cover shall be compacted and adequately sloped to allow storm water runoff, with slopes~~. The slopes shall be~~ no less than 5~~%~~ percent and no greater than 33~~%~~ percent. Intermediate cover shall be repaired as needed to maintain a minimum of one foot of compacted material until the intermediate cover is stabilized by means of vegetation or other erosion control measures in accordance with applicable sections of chs. NR 151 and 216. ~~The department may require that intermediate slopes be vegetated depending on the length of time they will remain open.~~ This section does not apply to ~~high volume~~ high-volume industrial waste, nor does it apply to wood residue approved as a construction material or to provide protection of the liner from frost under s. NR 506.07 (3) (b), unless specifically required by the department.

SECTION 61. NR 506.07 (1) (u) and (3) (d) are created to read:

NR 506.07 (1) (u) No additional waste placement shall occur in areas that have reached waste final grades and received intermediate cover under s. NR 514.07 (3) (b) unless approved by the department in writing.

(3) (d) High-volume industrial waste landfills shall have a means to direct storm water to the leachate collection system, or otherwise remove storm water, to prevent ponding within the landfill so that routine operation, maintenance, reaching final waste grades, and closure are not impeded.

SECTION 62. NR 506.07 (4) is amended to read:

NR 506.07 (4) GAS CONTROL. Effective means shall be utilized to prevent the migration of explosive gases generated by the waste fill as it is produced. At no time shall the concentration of explosive gases in any landfill structure, excluding the leachate collection system or gas control and recovery system components, exceed 25~~%~~ percent of the lower explosive limit for such gases. At no time shall the concentration of explosive gases in the soils outside of the limits of filling or air within 200 feet of or beyond the landfill property boundary exceed the lower explosive limit for such gases. The department may require the concentration of explosive gases not exceed detectable levels for that gas at the landfill property boundary.

SECTION 63. NR 506.07 (4g), (4g) (Note), and (4r) are created to read:

(4g) EARLY GAS EXTRACTION. (a) The department may require gas extraction to be performed earlier than as required under s. NR 440.75 (6) (b) or prior to attaining final waste grades, if any of the following conditions occur:

1. Persistent nuisance odors that are not corrected by adjustments to existing gas extraction methods, if installed, or other means of odor control.

2. Leachate seeps caused by gas pressure.

3. Reoccurring surface emissions greater than 500 ppm methane above the background concentration or areas with stressed vegetation on the cover or other physical signs of landfill gas emergence.

(b) The early gas extraction method may include installation of the active gas extraction system required by s. NR 504.08 (2) or temporary methods approved by the department in writing.

Note: The federal standards of performance for municipal solid waste landfills are available at https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-XXX#p-60.762(b)(2)(ii)(C).

(4r) PERFORMANCE OF GAS EXTRACTION SYSTEMS. (a) Any active vertical gas extraction well experiencing liquid levels covering 50 percent or more of the screened interval shall be remeasured within 30 days of the initial measurement. The owner or operator shall submit a corrective action plan to the department within 30 days after confirmation of a second consecutive liquid level measurement covering 50 percent or more of the screened interval. The corrective action plan shall include a timeline for implementation of the corrective actions. Corrective actions may include pump installation, gas extraction well replacement, gas extraction well addition or other actions approved by the department in writing.

(b) Any active horizontal gas extraction lines that have liquid accumulation or do not have vacuum the full length of the horizontal line shall be re-measured within 30 days of the initial measurement. The owner or operator shall submit a corrective action plan to the department within 30 days after confirmation of liquid accumulation or not having vacuum the full length of the line. The corrective action plan shall include a timeline for implementation of the corrective actions.

SECTION 64. NR 506.07 (5) (a) to (c) and (g) are amended to read:

NR 506.07 (5) (a) Leachate shall be removed from all collection tanks, manholes, lift stations, sumps or other structures used for leachate storage as often as necessary to allow for gravity drainage of leachate from the facility at all times or as it is produced, including hours when the landfill is closed, such

as overnight and weekends. The leachate head level on the composite liner shall be one foot or less in accordance with s. NR 504.06 (1) (a). Unless the facility has received written approval from the department to recirculate leachate or gas condensate derived from the landfill as provided in s. NR 506.13 (2), all leachate removed from a leachate collection system shall be disposed of at a wastewater treatment facility approved by the department and capable of accepting the leachate in accordance with the requirements of its WPDES permit. The landfill owner or operator shall immediately notify the department of any change in the availability of the designated wastewater treatment facility to accept or dispose of the leachate removed from the landfill. Waste may not be accepted at the landfill unless leachate is being managed in accordance with landfill's approved plan of operation and the requirements of this section.

(b) Any liquid ~~which comes in contact with~~ that contacts waste~~,~~ or alternate daily cover, or accumulates in a portion of the landfill where active waste disposal operations are occurring, shall be handled as leachate and properly treated as specified in par. (a) unless otherwise approved by the department in writing.

(c) All leachate collection lines shall be cleaned with a water jet cleanout device with a maximum pressure of 10,000 pounds per square inch immediately after construction, and annually thereafter. For high-volume industrial waste landfills, the department may approve a reduction in the frequency of leachate collection line cleaning in writing provided the operator can demonstrate there is no historic record of blockages or other issues with the performance of the lines.

(g) A summary report shall be submitted after each pipe cleaning and each video camera inspection event. The report shall summarize any specialty equipment or chemicals used in collection pipe cleaning. The report shall include a description of all observations, including recording tape or disk of the video camera inspection. The report shall, at a minimum, include all of the following: a map depicting pipe locations with a table indicating the length of each pipe, the name of each leachate cleanout, the distance cleaned from each leachate cleanout, and the amount of overlap achieved within each pipe. The report shall summarize the investigation of blockages or other difficulties in cleaning pipes. The report shall propose remediation if the leachate collection pipes are not restored to function and blockages are not cleared.

SECTION 65. NR 506.07 (5) (i) is created to read:

NR 506.07 (5) (i) All leachate pumps and flow recording devices shall be tested and maintained to ensure that leachate is pumped out of the landfill as it is produced, as required under par. (a), and that the reported leachate flows are accurate.

SECTION 66. NR 506.08 (3), (4) (Note), (5), and (6) are amended to read:

NR 506.08 (3) CLOSURE. Closure activities shall begin within 30 days after ceasing to accept solid waste. Closure shall be accomplished in the following manner for facilities without a closure plan or plan of operation approved in writing by the department. Placement of final cover in accordance with s. NR 504.07 may be required if the department determines that this type of final cover system is necessary to prevent or abate attainment or exceedance of the groundwater standards contained in ch. NR 140. ~~Municipal solid waste landfills that accepted greater than 100 tons of solid waste per day on an annual basis and ceased accepting municipal solid waste on or before October 8, 1993 shall have final cover placement completed by July 1, 1996. Municipal solid waste landfills that accepted 100 tons or less of solid waste per day on an annual basis and ceased accepting municipal solid waste on or before April 8, 1994 shall have final cover placement completed by July 1, 1996.~~

(4) Note: The ~~Wisconsin~~ department of transportation standard specifications for highway and structure construction is available at ~~http://www.dot.wisconsin.gov/business/engrserv/procedures.htm~~ https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/stndspec.aspx or can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707-7921, ~~(608) 266-2111, waste.management@dnr.state.wi.us~~ dnrwastemanagement@wisconsin.gov. Copies are also available for inspection at the ~~offices~~ office of the legislative reference bureau ~~and the secretary of state~~.

(5) DEED NOTATION. Following closure of a landfill phase ~~which~~ that accepted ~~municipal~~ solid waste ~~after July 1, 1996~~, the owner or operator shall, within 90 days after closure, ~~record a notation on the deed to the landfill property~~ submit on form 4400-067 proof that a notation of the existence of the landfill has been recorded in the office of the register of deeds in each county in which a portion of the landfill is located. The notation in the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill and its use is restricted to prevent disturbing the integrity of the final cover, liner or any other components of the containment system or the function of the monitoring systems.

(6) HAZARDOUS AIR CONTAMINANT CONTROL. All landfills ~~which~~ that have a design capacity of greater than 500,000 cubic yards and have accepted municipal solid waste shall install a department approved system to efficiently collect and combust hazardous air contaminants emitted by the landfill ~~within 18 months of February 1, 1988~~ unless the owner can demonstrate that the performance criteria of s. NR 504.04 (4) (f) can be achieved without implementing such a system. Control techniques other than combustion may be approved by the department.

SECTION 67. NR 506.08 (5) (Note), (7), and (7) (Note) are created to read:

NR 506.08 (5) Note: Form 4400-067 solid waste land disposal site affidavit may be obtained from the department of natural resources, bureau of waste and materials management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707-7921, dnrwastemanagement@wisconsin.gov.

(7) LONG-TERM CARE LICENSE. On completion of the requirements of this section the landfill owner or operator shall apply for a long-term care license.

Note: Form 4400-117 solid waste facility closure and long-term care license application may be obtained from the department of natural resources, bureau of waste and materials management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707-7921, dnrwastemanagement@wisconsin.gov.

SECTION 68. NR 506.081 is created to read:

NR 506.081 Long-term care requirements. Long-term care for all landfills, except a CCR landfill regulated under s. NR 506.084, shall be performed in accordance with the plan of operation approval or closure plan approval issued by the department and all of the following:

(1) LONG-TERM CARE MAINTENANCE REQUIREMENTS. Following closure of a landfill, the owner or operator shall conduct all of the following long-term care requirements for the landfill:

(a) *General requirements.* 1. Maintain a sign at the point of access to the landfill that includes the landfill name, license number, penalty for unauthorized use, statement that the landfill is closed, and any other pertinent information. Facilities that are operated by and serve only a single waste generator and are not open to the public are exempt from this provision.

2. Restrict unauthorized access by use of gates, fencing, or other appropriate means unless an alternative is approved by the department in writing.

3. Maintain permanent access roads to the landfill.

4. Maintain the landfill property to be free of litter and indiscriminate dumping.

5. Mow annually, at a minimum, to prevent establishment of woody vegetation, unless otherwise approved by the department in writing.

6. Maintain approved vegetation and remove woody vegetation growing on the final cover, within storm water features, structural support features, and on other ancillary landfill features.

Note: For assistance in maintaining approved vegetation, the Wisconsin regulated invasive plant species are listed at https://dnr.wisconsin.gov/topic/Invasives/RegulatedSpecies.

7. Repair any erosion and signs of animal intrusion on the final cover or within storm water features.

(b) *Sediment and erosion control*. Sediment and erosion control shall be maintained as required under s. NR 506.07 (2).

(c) *Gas control*. The gas control system shall be maintained as required under s. NR 506.07 (4).

(d) *Leachate collection system*. The leachate collection system shall be maintained as required under s. NR 506.07 (5) and in accordance with all of the following:

1. The leachate storage tanks shall be cleaned and inspected in accordance with manufacturer recommendations.

2. The secondary containment system shall be monitored as required under s. NR 504.06 (5) (n).

3. The leachate storage tank integrity shall be monitored to ensure that the cathodic protection on the leachate storage tank is working, if applicable.

4. Pressure testing of all leachate forcemains shall be conducted annually.

(e) *Monitoring devices*. All monitoring devices shall be maintained as required under s. NR 507.04 (3) and (4) and under all of the following:

1. Any permanent groundwater monitoring well no longer being used to gather information on geologic or groundwater properties shall be abandoned within 60 days after its use has been discontinued as required under s. NR 141.25 (1) (b).

2. All monitoring devices shall be inspected at least annually as required under s. NR 507.13.

3. All surface water sampling locations shall be surveyed and permanently and clearly marked as required under s. NR 507.23 (2).

4. Woody vegetation near a monitoring device shall be removed if continued growth of the vegetation may damage the monitoring device.

(f) *Abandonment*. All monitoring devices shall be abandoned as required under s. NR 507.04 (5).

(g) *Final use*. Final use shall be restricted as required under s. NR 506.085.

(2) PERPETUAL LONG-TERM CARE. In accordance with s. 289.41 (1m) (c), Stats., the owner of an approved facility is responsible for the perpetual long-term care of the facility. Long-term care shall be performed in accordance with the plan of operation or closure plan.

(3) LONG-TERM CARE PROOF OF FINANCIAL RESPONSIBILITY. No later than 60 days following the end of the period for which the owner is required to maintain proof of financial responsibility for long-term care in accordance with s. 289.41 (1m) (b), Stats., the owner shall submit a notification to the department and place such notification in the facility's operating record. The notification shall verify that the landfill is complying with the approved long-term care plan and long-term care requirements. The notification shall include a certification by a professional engineer.

SECTION 69. NR 506.085 (2) and (3) are amended to read:

NR 506.085 (2) Establishment or construction of any pathways, roadways, structures, or buildings over the waste disposal area.

(3) Excavation or disturbance of the final cover or any waste materials.

SECTION 70. NR 506.09 (3) is created to read:

NR 506.09 (3) EVALUATION OF SPECIAL WASTES AT MUNICIPAL SOLID WASTE LANDFILLS. Municipal solid waste landfill owners or operators shall determine at least every 3 years whether the physical or chemical characteristics of additional waste types approved for acceptance under sub. (2) have changed in physical or chemical characteristics. If the waste characteristics have changed, the landfill owner or operator shall submit a request for reauthorization of the waste to the department under sub. (2).

SECTION 71. NR 506.095 (3), (5), and (6) are amended to read:

NR 506.095 (3) Waste oil, oil filters, oil absorbent materials, or materials containing waste oil, except as provided ~~in~~ under s. NR 506.105 and par. (a).

(5) Solid waste that contains any material identified in s. 287.07 ~~(3)~~ (4), Stats., that is generated in a region, as defined ~~in~~ under s. 287.01 (8), Stats., that does not have an effective recycling program as determined under s. 287.11, Stats., and ch. NR 544, unless the material is subject to an exemption, waiver or beneficial use approval under s. 287.11 (2p), Stats. This subsection does not apply to any material identified in s. 287.07 ~~(3)~~ (4), Stats., that contains infectious waste or that is from a treatment area and is mixed with infectious waste generated in the treatment area, if the container, package or material has been treated pursuant to standards established under ch. NR 526 to render the infectious waste noninfectious.

(6) A material identified ~~in~~ under s. 287.07 ~~(3)~~ (4), Stats., that is separated for recycling as part of an effective recycling program under s. 287.11, Stats., and ch. NR 544, unless the department has granted a variance under s. 287.11 (2m), Stats.

SECTION 72. NR 506.095 (7) and (8) are created to read:

NR 506.095 (7) Electronic devices identified under s. 287.07 (5), Stats., and any electronic devices identified by the department under s. 287.17 (10) (i), Stats.

(8) Waste tires as defined under s. 289.55 (1) (c), Stats.

SECTION 73. NR 506.10 (1) (b) 1. is amended to read:

NR 506.10 (1) (b) 1. Category I non-friable asbestos containing material~~, which~~ that is not construction and demolition material~~,~~.

SECTION 74. NR 506.105 (1) (a) 1. is amended to read:

NR 506.105 (1) (a) 1. The volume of untreated petroleum contaminated soil that is proposed to be used as daily cover does not exceed the landfill's net daily cover needs or 12.5~~%~~ percent of the annual volume of waste received by the landfill, whichever is less.

SECTION 75. NR 506.105 (3) (Note 2) is repealed.

SECTION 76. NR 506.12 is repealed and recreated to read:

NR 506.12 Technologically enhanced naturally occurring radioactive material waste. (1) A landfill may accept for disposal TENORM waste if all of the following requirements are met:

(a) The landfill is a licensed and approved landfill as defined under s. 289.01 (3), Stats.

(b) The landfill is approved by the department in writing to accept TENORM waste.

(c) TENORM sludge wastes meet the requirements contained in s. NR 506.13 or 506.14, as appropriate.

(2) A landfill may accept for disposal TENORM waste with radiation levels at or above 5 picocuries and below 50 picocuries of combined radium-226 and radium-228 if all the following requirements are met in addition to those in sub. (1):

(a) The landfill's approved plan of operation specifies measures to control any radon gas that may be generated by the TENORM waste. If measures to control radon gas are not included in the approved plan of operation, the landfill owner or operator shall submit a proposal to the department for approval that specifies measures to control any radon gas that may be generated by the TENORM waste.

(b) TENORM waste is not disposed within 10 feet of the inside edge of any landfill liner, sidewall, or final cover.

(c) TENORM waste is covered immediately after placement with a layer of non-radioactive material such as municipal waste or daily cover.

(d) TENORM waste is not used as pipe bedding or placed directly adjacent to any of the lateral leachate recirculation lines if the landfill conducts leachate recirculation, and

(e) TENORM waste is kept moist and covered or containerized during transport and handling to minimize the potential for dust generation.

(3) A landfill shall request case-specific written approval from the department prior to accepting for disposal any TENORM waste with radiation levels at or above 50 picocuries per gram of combined radium-226 and radium-228. In consultation with the department of health services, the department may require handling and disposal conditions in addition to the requirements in subs. (1) and (2) before disposal or determine that the TENORM waste is not appropriate for landfill disposal.

SECTION 77. NR 506.13 (2) is amended to read:

NR 506.13 (2) MUNICIPAL SOLID WASTE DISPOSAL FACILITIES. Solid waste landfills used for the disposal of municipal solid waste may not accept waste containing free liquids except as provided in sub. (1) or unless the landfill has received written approval from the department to recirculate leachate or gas condensate derived from the landfill or has received written approval from the department for the addition of liquids through a research, development, and demonstration plan under s. NR 514.10. Recirculation of leachate or gas condensate or the addition of liquids through a research, development, and demonstration plan will be considered only for landfill phases designed with a composite liner and efficient leachate collection system.

SECTION 78. NR 506.17 (1) (title) is amended to read:

NR 506.17 (1) ~~MUNICIPAL SOLID WASTE LANDFILL~~ LANDFILL WRITTEN OPERATING RECORD.

SECTION 79. NR 506.17 (1) is renumbered NR 506.17 (1) (a) and amended to read:

NR 506.17 (1) (a) The owner or operator of a landfill, except a CCR landfill, ~~that accepts municipal solid waste~~ shall maintain a written operating record at the landfill during the operating life and ~~40 year~~ long-term care ~~period~~ of the landfill. The department may approve an alternate location for maintaining the record. The record shall contain information on any landfill location criterion restriction, inspection records, training procedures, notification procedures, closure and post closure plans and financial responsibility, and all demonstrations, certifications, findings, monitoring, testing and analytical

data required under chs. NR 500 to 538. Random load inspection records shall be maintained for a minimum of 3 years. The operating record shall be made available to the department upon request.

SECTION 80. NR 506.17 (1) (b) is created to read:

NR 506.17 (1) (b) The owner or operator shall transfer the landfill records to a new owner or operator after acquiring rights of ownership, possession, or operation in a licensed solid waste facility.

SECTION 81. NR 506.17 (3) (d) 12. is created to read:

NR 506.17 (3) (d) 12. Annual reports required under s. NR 506.20 (3).

SECTION 82. NR 506.17 (5) is created to read:

NR 506.17 (5) LANDFILL NOTIFICATION REQUIREMENTS. (a) A written notification required under ch. NR 507 or 508 or this section shall be sent to the department before the close of business on the day the notification is required to be completed. For purposes of this section, before the close of business means the notification must be postmarked or sent by email. If a notification deadline falls on a weekend or legal holiday, the notification deadline is automatically extended to the next business day.

(b) Notifications under par. (a) may be combined provided the deadline requirement for each notification is met.

(c) Notification of a landfill surface fire shall be made within one day of the occurrence. The notification shall include all of the following:

1. The location, size, duration, and potential cause of the surface fire.

2.The actions taken to extinguish the fire by the landfill owner or operator or a fire department, including the volume of any water or firefighting foams added to put out the fire.

3. A discussion of any impacts to landfill features or equipment.

(d) Notification of a suspected landfill subsurface fire or elevated temperatures shall be made within 5 days of verification. The notification shall include all of the following:

1. The actions taken, or to be taken, to determine if there is a subsurface fire or elevated temperatures.

2. The actions taken, or to be taken, to prevent the spreading of the fire or elevated temperatures.

3. The actions taken, or to be taken, to reduce impacts to the surrounding landfill features.

4. If the actions taken, or to be taken, will impact operations of the landfill.

(e) Notification of a leachate seep or leachate spill outside the limits of filling shall be made within one day of discovery of the occurrence. The notification shall include all of the following:

1. Discussion of how the seep or spill was found and identified.

2. A map showing the location, flow directions, and extent of the seep or spill.

3. Discussion of cause of the seep or spill and approximate volume of the seep or spill.

4. Discussion of environmental impacts, such as impacts to storm water features or wetlands.

5. Photographic documentation of the release and any environmental impacts.

6. Methods used to stop and contain the release.

7. Methods used, or proposed to be used, to clean up the release and contaminated soil below the release.

8. Date and time the department spills hotline and any other department program were notified.

Note: The 24-hour emergency spills hotline is 1-800-943-0003.

(f) Notification of completion of cleanup of the release in par. (e) shall be made within 30 days of discovery of the occurrence. The notification shall include all of the following:

1. Verification that the release and any impacted soil or other environmental media have been cleaned up.

2. Soil sample results and map of sample locations collected used to verify any impacted soil has been removed.

3. Discussion of measures taken to prevent future releases.

SECTION 83. NR 506.19 (1) and (2) (e) are amended to read:

NR 506.19 (1) COMPLIANCE CERTIFICATION. No later than ~~March 31~~ April 30 of each year ~~and continuing~~ until otherwise specified by the department, the owner or operator of any licensed landfill which is in operation ~~as of July 1, 1996~~, or any licensed, closed landfill with an approved total design capacity exceeding 1,000,000 cubic yards shall prepare and submit to the department a compliance certification. The certification shall be prepared and signed by the owner or operator of the landfill, certified facility manager, solid waste manager or person most directly responsible for the landfill's day to day operation. The signer shall certify that he or she is aware of all approved plans for the landfill, all department conditions of approval, and all applicable solid waste statutory and administrative rules, and that to the best of the signer's knowledge, information and belief, the landfill is or is not in substantial compliance with all approved plans and requirements. For landfills ~~which~~ that are in full compliance, no narrative is required beyond the certification statement. For other landfills, all known areas of

noncompliance shall be clearly indicated. This subsection does not impose personal liability upon certified facility managers or certified site operators.

(2) (e) An evaluation of the performance of the leachate collection and removal system ~~which~~ that shall include graphed results of monthly leachate removal volumes from the beginning of filling at the landfill to the end of the current calendar year. Leachate volume data shall be graphed separately for each leachate collection tank or lift station. Leachate removal volumes shall also be graphed as a depth over the area of liner ~~which~~ that has been constructed at a given point in time. Graphs shall note when each phase or portion thereof was constructed or closed. Monthly leachate data shall be annualized by multiplying by 12 and reported in units of inches per year. All leachate quality data for BOD ~~or COD~~, including that regularly performed at the request of wastewater treatment facilities, shall be presented graphically. Graphs of monthly average BOD ~~or COD~~ in mg/l shall be presented as well as pounds of BOD ~~or COD~~ removed per month from the facility. Also included shall be a tabulation of all past monthly leachate removal volumes and average BOD ~~or COD~~ concentrations. The department may request that leachate quality data for other parameters be presented graphically.

SECTION 84. NR 506.19 (3) and (4) are created to read:

NR 506.19 (3) MUNICIPAL SOLID WASTE LANDFILL ANNUAL REPORT. The owner or operator of a municipal solid waste landfill shall prepare and submit an annual report to the department no later than April 30 of each year. The annual report shall, at a minimum, include all of the following information from the previous calendar year:

(a) *General requirements.*

1. At least one plan view drawing clearly annotating all of the following:

a. The landfill development and filling status information specified in s. NR 506.19 (2) (a) on a topographic site map depicting all landfill phases.

b. All existing environmental monitoring points and systems on a color-coded site map.

2. The compliance certification required under s. NR 506.19 (1).

3. Copies of random load inspections required under s. NR 506.16.

(b) *Windblown debris management*. The actions used to minimize windblown debris, including, at a minimum, the dates when wind speeds were greater than or equal to 30 mph at the working face, the dates when the landfill was shut down due to wind, and the dates when windblown debris from the landfill is collected from locations off the landfill property.

(c) *Special waste and alternative daily cover.*

1. Daily mixing ratios of each sludge waste to municipal solid waste as required under s. NR 506.14 (2) (e), unless the small quantity exemption requirements under s. NR 506.14 (1) are met.

2. Total tonnage of special wastes and tabulation by waste category for each waste type in the special waste plan accepted for disposal the previous calendar year.

3. Physical and chemical characteristic retesting requirements under s. NR 506.09 (3).

4. Computation of the total volume of all wastes disposed at the landfill and the proportions of special wastes compared to the total volume of landfill filled.

5. Tonnage for each waste used as alternate daily cover or other approved fee-exempt use, the ratio of waste to alternate daily cover by volume or weight, and a discussion of any changes or problems encountered with the use of the wastes within the landfill.

(d) *Gas extraction system.*

1. Results of surface emission monitoring with supporting narrative, a map identifying problem areas, the calibration date for portable analyzer, and meteorological conditions at the time of inspection, including temperature, barometric pressure trend, average wind speed, wind direction, and sky conditions, if applicable. The report shall describe remedial measures taken to correct areas of landfill methane gas emissions at 500 ppm or more above the background concentration or areas with stressed vegetation or other physical signs of landfill gas emergence. The report shall include construction documentation in accordance with ch. NR 516 for any repairs conducted on the clay or geosynthetic layers of final covered areas.

2. Records of gas extraction system shutdown periods, length of time of each shutdown, and corrective action for the system or individual extraction wells.

3. Any maintenance, cleaning, repair, or replacement of extraction wells, header or lateral lines, gas condensate knock-outs, blower or gas combustion equipment components, or valve assemblies.

4. An assessment of the gas extraction system performance, including liquid levels in the gas extraction wells, the condition of each gas well and identification of any wells that need to be replaced or have been replaced, the quality and quantity of gas and gas condensate produced from the landfill, and the removal of volatile organic compounds and other substances in the gas and gas condensate. Also include a summary of gas wells that experienced liquid head levels covering over 50 percent of the screen and any corrective actions taken.

(e) *Environmental monitoring*.

1. A summary of groundwater sampling results that exceed any approved PAL or ACL or ch. NR 140 PAL or ES when ACLs are not approved, and an assessment of the cause and significance of the exceedances.

2. An assessment of any increasing concentration trends of monitored parameters in groundwater over the past 4 or more sampling events.

3. A groundwater elevation contour map with a summary of any significant change in flow patterns compared to previous flow patterns, unless otherwise approved by the department in writing.

4. A summary of the status and condition of all environmental monitoring devices including all of the following:

a. A list of all monitoring devices that did not function properly or were damaged.

b. A description of repairs, replacements, or modifications completed to regain function of the monitoring device.

5. A summary of gas monitoring results and any remediation required under s. NR 507.22 (1) (c).

6. A summary of anticipated significant monitoring device activities for the upcoming year, such as installations or abandonments.

(f) *Leachate collection and recirculation.*

1. The leachate collection line video camera inspection required under s. NR 506.07 (5) (e) or the date the next leachate collection line video camera inspection will occur.

2. Documentation of leachate collection line cleaning and identification of any blockages or impedances within lines required under s. NR 506.07 (5) (f) and (g).

3. Documentation of monitoring, cleaning, and inspecting leachate storage tanks and their secondary containment systems.

4. Documentation of monitoring or pressure testing leachate transfer lines and manhole secondary containment systems.

5. The annual report for leachate recirculation in accordance with s. NR 506.135 (5) including a summary and tabulation of monitoring required under s. NR 507.215 (1) to (4), if applicable.

6. The summary report of the removal of any dams or barriers used to separate clean water in a prepared cell from solid waste and leachate as required under s. NR 506.07 (5) (h).

7. Documentation of any changes or renewals of leachate treatment agreements with wastewater treatment facilities.

(g) *Organic stability.*

1. An evaluation of the performance and a report of the implemented landfill organic stability plan required under s. NR 514.07 (9) (d).

2. Every 5 years, a report describing the evaluation of the plan and likelihood that the plan will enable the landfill to reach the organic stability goals, as required under s. NR 514.07 (9) (e). The report

shall state when the next 5-year report is due.

(h) *Research, development, and demonstration.* The annual report required under s. NR 514.10 (1) (f), and in accordance with the approved research, development, and demonstration plan, if applicable.

(i) *Surface water controls and final cover maintenance.*

1. A copy of the annual compliance inspection and evaluation required by the storm water permit and a summary of any maintenance of storm water controls.

2. A summary of surface water monitoring results including visual inspections.

3. An evaluation of settlement of final cover areas since the last annual survey and any evidence of surface water ponding, poor drainage, differential settlement, erosion, or other disruption of the final cover structure.

4. An evaluation of the establishment of vegetation on final and interim covered areas, a summary of any response to erosion control efforts and surface stabilization efforts, and any evidence of animal intrusion.

5. An annual evaluation of seed mix establishment for the first 4 years after application and actions that may be taken to enhance establishment as needed.

(4) INDUSTRIAL WASTE LANDFILL ANNUAL REPORT. The owner or operator of an industrial waste landfill, except for a CCR landfill under s. NR 506.20, shall prepare and submit an annual report to the department no later than April 30 of each year. The annual report shall, at a minimum, include all of the following information:

(a) The general requirements under sub. (3) (a).

(b) The windblown debris management required under sub. (3) (b).

(c) The environmental monitoring information required under sub. (3) (e).

(d) The leachate collection line information required under sub. (3) (f) 1. to 4.

(e) The surface water control and final cover maintenance information required under sub. (3) (i).

SECTION 85. NR 507.04 (2) and (3) are amended to read:

NR 507.04 (2) FIELD DIRECTION. A professional geologist or qualified technician who is directly supervised by a professional geologist shall observe and direct the drilling of all borings and the installation, development and abandonment of all wells. A professional geologist or qualified technician who is directly supervised by a professional geologist shall also conduct all in-field hydraulic conductivity tests and visually describe and classify all of the geologic samples. All groundwater sampling and related data collection shall be performed by a professional geologist or qualified technician, unless otherwise approved by the department in writing.

(3) PROTECTION. All monitoring and sampling devices shall be sealed and locked to prevent contaminants from entering the monitoring device. The department may approve in writing alternate methods to properly secure a monitoring device. All monitoring wells and gas probes shall have protective metal casings. All other monitoring devices shall be protected as necessary. The department may require additional protective devices such as a ring of brightly colored posts around any monitoring device. All leachate head wells shall be protected to prevent damage during facility operation.

SECTION 86. NR 507.04 (3m) is created to read:

NR 507.04 (3m) GROUND SURFACE SEAL. All ground surface seals shall be maintained to prevent infiltration of contaminants. The ground surface seal shall be maintained so the protective metal casing remains stable.

SECTION 87. NR 507.04 (4) is amended to read:

NR 507.04 (4) LABELING. All monitoring devices shall be clearly and permanently labeled on the outside of the monitoring device. At a minimum, the label shall include the device name and ~~3-digit~~ identification number assigned ~~to each well~~ by the department. Leachate cleanouts, headwells, vaults, lift stations, manholes, and gas extraction wells shall also be permanently labeled with the device name and, if applicable, the identification number assigned by the department. Groundwater monitoring wells must be labeled with their Wisconsin unique well number in accordance with s. NR 141.23 (2).

Note: Wisconsin unique well number (WUWN) labels are supplied by the department's Drinking Water and Groundwater program but are commonly provided by well drillers at the time of well installation. The WUWN label is best applied at a fixed location inside the groundwater well's protective metal casing, as the label is unique and cannot be replaced.

SECTION 88. NR 507.05 (1) (b) and (c) are amended to read:

NR 507.05 (1) (b) In fine-grained soil environments, continuous samples shall be collected from the land surface to at least 25 feet below the anticipated, proposed, or existing sub-base grade for the purpose of field classification. If a boring extends beyond 25 feet below the anticipated, proposed, or existing sub-base grade, samples shall be collected between 25 feet and the bottom of the boring from each major soil unit encountered and at maximum 5-foot intervals. If the boring is located outside the anticipated, proposed, or existing limits of filling, the applicable sub-base grade is the elevation of the bottom of the anticipated, proposed, or existing liner system nearest to the borehole.

(c) In coarse-grained soil environments, samples shall be collected from each major soil unit

encountered and at maximum 5-foot intervals to the bottom of the boring. All borings shall extend at least 25 feet below the anticipated, proposed, or existing sub-base grade. If the boring is located outside the anticipated, proposed, or existing limits of filling, the applicable sub-base grade is the elevation of the bottom of the anticipated, proposed, or existing liner system nearest to the borehole.

SECTION 89. NR 507.06 (1) (b) is amended to read:

NR 507.06 (1) (b) Standard penetration tests shall be performed while drilling in soil. Soil drilling methods in fine--grained soil environments shall allow the driller to obtain undisturbed soil samples. If a soil drilling or sampling method does not allow for standard penetration tests, then the shear strength of the recovered fine-grained soil samples shall be estimated and recorded in the field with a pocket penetrometer or vane shear.

SECTION 90. NR 507.07 is amended to read:

NR 507.07 Groundwater monitoring well development. All groundwater monitoring wells shall be properly developed following installation in accordance with s. NR 141.21 and this section. To determine the effectiveness of the development, a sample shall be taken from the well within 24 hours of completion of development and analyzed for total suspended solids. Additional purging is not required prior to taking the sample. ~~If drilling fluids were used during well construction, the sample shall also be tested for COD.~~

SECTION 91. NR 507.08 (2) is amended to read:

NR 507.08 (2) ABANDONMENT OF WATER SUPPLY WELLS. Water supply wells ~~which~~ that are required to be abandoned shall be abandoned and documented in accordance with s. NR 812.26. Abandonment of water supply wells located within the proposed or approved limits of waste shall include either removal or perforation of the well casing to allow the sealing of the annular space with impermeable filling and sealing material.

SECTION 92. NR 507.09 is amended to read:

NR 507.09 Leachate head well design and installation. All leachate head wells required under s. NR 504.09 (2) (i) shall be located, designed and installed so as to obtain reliable and representative information regarding the leachate head levels within the landfill. Leachate head wells in landfills ~~with a composite liner~~ shall be designed with risers on the sideslopes unless an alternative design is approved in writing by the department. ~~Landfills with a clay liner shall use a vertical leachate head well design.~~ All leachate headwells shall be documented in accordance with s. NR 507.14 (1) and (5) (a).

SECTION 93. NR 507.14 (1) is amended to read:

NR 507.14 (1) WELL LOCATION. Documentation of all well locations shall be done in accordance with s. NR 141.065. Geographic information system locational information shall be provided for all borings and wells. The locations shall be collected using a reference coordinate system and projection datum specified by the department. The reference coordinate system, projection datum, and units shall be provided for each point. The date, method, and tools used to collect locational information for each point shall be included. The department may approve in writing other methods of geolocation that provide similar or better accuracy.

SECTION 94. NR 507.14 (4) (c), (c) (Note), (d), and (e) are created to read:

NR 507.14 (4) (c) Facility name, all facility identification numbers provided by the department, well or boring name, installation or completion date, and the name of the person or firm that completed the work. If a well is installed, documentation shall include well type and all identification numbers provided by the department.

Note: Facility identification numbers are a 9-digit facility identification number and a 4-digit license number or monitoring number. Point identification numbers for wells are a 3-digit number and a Wisconsin Unique Well Number if available.

(d) Monitoring well abandonment documentation in accordance with s. NR 141.25 that shall include the original well, drilling, and boring construction information and abandonment materials and methods, including whether well components were removed.

(e) For all monitoring wells or water supply wells located within the approved limits of waste, copies of completed well abandonment information required under par. (c) shall be included in an appendix of the liner construction documentation report for the landfill phase in which the well was located. The information required under this paragraph is in addition to well abandonment reporting requirements of ss. NR 141.25 (4) and 812.26 (7).

SECTION 95. NR 507.14 (5) (intro.) and (a) and (5) (Note) are amended to read:

NR 507.14 (5) FORMS. Documentation of activities performed under this chapter shall be submitted on the most recent version of the department forms listed in this subsection ~~and included in ch. NR 507 Appendix V,~~ at the time the activities were performed and be completed as instructed. ~~All the information on the forms and instructions in ch. NR 507 Appendix V shall be provided on the appropriate form included in ch. NR 507 Appendix V.~~ The department may approve replicate forms generated by the facility owner or operator for use in submitting the required information. The forms include:

(a) Groundwater monitoring well information form 4400-089, for use whenever monitoring points are added or removed from the monitoring system, including water supply wells. ~~Within 6 months following July 1, 1996, all owners and operators of solid waste landfills where monitoring is required shall submit a completed form which includes the current condition of all existing and former monitoring points and whether the well is a Subtitle D well.~~ Following this submittal of the form, future submittals may contain only the changes to the monitoring network being documented.

(5) Note: ~~The forms and software for submitting the forms electronically are available at http://dnr.wi.gov/topic/Groundwater/forms.html. The forms and the software~~ Forms are available electronically at https://dnr.wisconsin.gov/topic/Groundwater/forms.html and may also be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707-7921, ~~(608) 266-2111., waste.management@dnr.state.wi.us~~ dnrwastemanagement@wisconsin.gov.

SECTION 96. NR 507.15 (2) (title) is repealed and recreated to read:

507.15 (2) (title) SUBTITLE D LANDFILLS.

SECTION 97. NR 507.15 (2) (b) (intro.) is renumbered NR 507.15 (2) (b) and amended to read:

NR 507.15 (2) (b) Propose to the department a detection monitoring program, including baseline groundwater quality, leachate and lysimeter monitoring and Subtitle D well locations, in accordance with s. NR 507.19 in a feasibility report ~~or for existing facilities according to the following schedule:~~ for new or expanding landfills.

SECTION 98. NR 507.15 (2) (b) 1. and 2. are repealed.

SECTION 99. NR 507.15 (2) (d) and (e) and (3) (h) and (k) are amended to read:

NR 507.15 (2) (d) Propose to the department a ~~quarterly~~ gas monitoring program in accordance with s. NR 507.22 ~~implementation within 60 days after July 1, 1996 at existing facilities or in a feasibility report~~ in a feasibility report for new or expanding landfills.

(e) Implement a ~~quarterly~~ gas monitoring program in accordance with plans approved by the department.

(3) (h) In addition to the field measurements required under s. NR 507.17 (1), the groundwater elevations shall be measured in each CCR well immediately prior to purging~~,~~ each time groundwater is sampled, and the results shall be reported to the department in accordance with s. NR 507.26 (3). The

owner or operator of the CCR landfill shall also determine the rate and direction of groundwater flow each time groundwater is sampled and report the ~~result~~ results to the department in writing along with any other explanations or notifications required under s. NR 507.26 (3) ~~accordance with s. NR 507.26~~. Groundwater elevations in wells that monitor the same CCR landfill shall be measured within a timeframe short enough to avoid temporal variations in groundwater flow that could preclude accurate determination of groundwater flow rate and direction.

(k) The owner or operator of the CCR landfill shall ~~notify~~ submit to the department in writing all CCR well sampling and analytical results within ~~60~~ 90 days of ~~completing sampling and analysis at any CCR well when a groundwater standard has been attained or exceeded in accordance with s. NR 507.30.~~ the end of the sampling period in accordance with s. NR 507.26 (3).

SECTION 100. NR 507.16 (1) (d) 7. is created to read:

NR 507.16 (1) (d) 7. Procedures for containerizing and disposing of purge water with known or probable exceedances of an enforcement standard for a substance of public health concern.

SECTION 101. NR 507.17 (4) is amended to read:

NR 507.17 (4) ANALYTICAL METHODS. Groundwater, lysimeter, and leachate samples shall be handled and analyzed in accordance with ~~the requirements of methods listed in subch. VII of~~ ch. NR 149 or other suitable analytical method identified by the department in writing. Screening methods may not be used unless approved in writing by the department. Water supply samples shall be handled in accordance with s. NR 507.20. ~~The department may approve alternative analytical methods under s. NR 149.42.~~

SECTION 102. NR 507.18 (1) (a), (2) (a), (3) (a), (4), and (5) (a) are amended to read:

NR 507.18 (1) (a) Baseline groundwater quality shall be established at all monitoring wells that were installed ~~outside the proposed limits of filling~~ to evaluate the proposed facility. Samples shall be analyzed for each detection monitoring parameter as appropriate for the particular waste types accepted at the landfill. Chapter NR 507 Appendix I, Tables 1, 1A, and 2 indicate which parameters shall be analyzed for each waste type. The department may require additional parameters based on the waste types and waste characteristics accepted at the landfill.

(2) (a) Unless otherwise specified by the department in writing, baseline groundwater quality shall be established at all monitoring wells ~~outside the proposed limits of filling which~~ that were installed to evaluate the proposed facility. Baseline water quality for these wells shall be established for the public health and welfare groundwater quality standards listed ~~in~~ under ch. NR 507 Appendix I, Table 3.

(3) (a) Baseline groundwater quality shall be established for all VOCs listed ~~in~~ under ch. NR 507 Appendix III, at all monitoring wells that were installed to evaluate the proposed facility ~~outside the proposed limits of filling~~. Landfills designed to accept CCR and CCR landfills are exempt from baseline groundwater quality monitoring for VOCs.

(4) BASELINE GROUNDWATER QUALITY AT NEW OR REPLACEMENT MONITORING WELLS. All new or replacement groundwater monitoring wells ~~installed after July 1, 1996,~~ shall be sampled on a semi-annual basis beginning with the sampling event following installation for the parameters specified ~~in~~ under subs. (1) to (3) to establish baseline groundwater quality. The results shall be submitted in accordance with s. NR 507.26 (3). The department may waive the requirement to establish baseline groundwater quality monitoring for a replacement well ~~which~~ that is established in the same environment and proximity as the well being replaced. This requirement does not apply to new wells installed for the purpose of investigating potential groundwater impacts from the landfill or for wells installed at closed landfills that predate baseline sampling requirements unless otherwise directed by the department in writing.

(5) (a) Baseline groundwater quality shall be established by the owner or operator of a CCR landfill at all CCR wells installed ~~outside the proposed limits of filling~~ to evaluate groundwater quality in the uppermost aquifer beneath the CCR landfill as provided in par. (b). Samples shall be analyzed for each monitoring parameter as indicated under ch. NR 507 Appendix I, Tables 1A and 3 for detection and baseline monitoring for CCR wells.

SECTION 103. NR 507.19 (intro.) is amended to read:

NR 507.19 Detection groundwater monitoring. Owners or operators of solid waste disposal facilities shall implement a detection groundwater monitoring program in accordance with this section and the approved plan of operation unless otherwise approved in writing by the department. If assessment monitoring is a required response in accordance with s. NR 508.05, the owner or operator shall continue detection monitoring at all wells without interruption unless the department approves otherwise in writing. The department may require the owner or operator of a solid waste disposal facility to sample water supply wells in accordance with s. NR 507.20.

SECTION 104. NR 507.20 (3) (intro.) and (3) (Note) are amended to read:

NR 507.20 (3) PRIVATE WATER SUPPLY WELL DOCUMENTATION. The owner or operator of a solid waste disposal facility ~~which~~ that is required by the department to sample private wells shall do ~~each~~ all of the following ~~during the first round of sampling after July 1, 1996~~:

(3) Note: The form is available at http://dnr.wi.gov/topic/Groundwater/forms.html. It may also

be obtained from the department of natural resources, bureau of waste management, 101 South Webster Street, P.O. Box 7921, Madison, WI 53707-7921, ~~(608) 266-2111, waste.management@dnr.state.wi.us~~ dnrwastemanagement@wisconsin.gov.

SECTION 105. NR 507.21 (2) is amended to read:

NR 507.21 (2) ADDITIONAL LEACHATE SAMPLING. Owners or operators of municipal solid waste disposal facilities required to designate Subtitle D wells in accordance with s. NR 507.15 (2) (a) may monitor leachate annually for parameters listed in ch. NR 507 Appendix II. Within 14 days after obtaining the leachate sampling results, the owner or operator shall place the results in the operating record and, within ~~60~~ 90 days ~~after~~ of the end of the sampling period, submit the results to the department.

SECTION 106. NR 507.21 (3) is renumbered NR 507.21 (3) (title) and (3) (a) and amended to read:

NR 507.21 (3) LEACHATE HEAD MONITORING. (a) *Sampling.* Owners or operators of solid waste disposal facilities shall sample all leachate head wells for leachate head levels on a quarterly basis, at a minimum, unless otherwise approved by the department in writing, and report the data to the department semi-annually and in accordance with s. NR 507.26 (3).

SECTION 107. NR 507.21 (3) (b) is created to read:

NR 507.21 (3) (b) *Notification and remediation.* If the owner or operator of a solid waste disposal facility records leachate levels greater than one foot in any leachate head well, the owner or operator shall remeasure the level in that well within 30 days of the initial measurement. The owner or operator shall submit a corrective action plan to the department within 90 days after confirmation of a second consecutive leachate level measurement greater than one foot. The corrective action plan shall include a timeline for implementation of the corrective actions. In addition to requirements for landfill owners under s. NR 507.15 (2), the proposed corrective action plan and notification of its implementation shall be placed in the operating record. The department may, upon written request, approve alternate schedules for submittal and implementation of the corrective action plan.

SECTION 108. NR 507.215 (intro.) is amended to read:

NR 507.215 Leachate recirculation monitoring. The owner or operator of a solid waste facility that recirculates leachate shall sample for, maintain records of, and report to the department ~~as required~~ all of the following, in accordance with ch. NR 507 Appendix I, Table 4A:

SECTION 109. NR 507.215 (3) (b) is repealed.

SECTION 110. NR 507.22 (1) (a) is amended to read:

NR 507.22 (1) (a) *Sampling parameters.* The owner or operator shall sample gas monitoring wells ~~quarterly for percent methane and percent oxygen~~ beginning with the first sampling period following acceptance of waste in accordance with ch. NR 507 Appendix I, Table 6 or as otherwise approved by the department in writing. Each time a well is sampled, the following shall be recorded: temperature, ground condition, barometric pressure, information as to whether the barometric pressure is rising or falling, and initial and stabilized methane levels. Initial readings are not required to be reported unless the stabilized reading for a particular monitoring point drops to zero.

SECTION 111. NR 507.22 (2) is renumbered NR 507.22 (2) (title) and (2) (a).

SECTION 112. NR 507.22 (2) (b) is created to read:

NR 507.22 (2) (b) The owner or operator of a municipal solid waste disposal facility shall sample the landfill gas extraction system beginning with the first sampling period following installation in accordance with ch. NR 507 Appendix I, Table 6 or as otherwise approved by the department in writing.

SECTION 113. NR 507.22 (3) is amended to read:

NR 507.22 (3) REPORTING. Unless otherwise approved by the department in writing, the owner or operator shall report gas monitoring results to the department no less frequently than semi-annually and in accordance with s. NR 507.26 (3).

SECTION 114. NR 507.23 (intro.) is amended to read:

NR 507.23 Surface water monitoring. The department may require the owner or operator to monitor storm water runoff, leachate seeps, sumps, sedimentation ponds, any surface water bodies including wetlands, and other storm water discharges resulting from facility operation. Unless otherwise approved by the department in writing, the owner or operator shall report surface water monitoring results in accordance with s. NR 507.26 (3).

SECTION 115. NR 507.26 (2) (a) is amended to read:

NR 507.26 (2) (a) The owner or operator shall report to the department the results of all water supply well sampling required by the department ~~within 10 days after receipt~~ in accordance with sub. (3)

and ch. 160, Stats. The results shall be accompanied by ~~2 copies of~~ a copy of the laboratory results and a cover letter ~~which highlights values that attain or exceed enforcement standards in s. NR 140.10 Table 1. The owner or operator shall report to the department the results of all water supply well sampling required by the department in accordance with sub. (3)~~ that includes the location address of each water supply well, the water supply well owner name and mailing address, and the occupant's name and mailing address, if different from the water supply well owner.

SECTION 116. NR 507.26 (2) (am) is created to read:

NR 507.26 (2) (am) When the results of any water supply well sampling attain or exceed a preventive action limit or enforcement standard in s. NR 140.10 Table 1 or s. NR 140.12 Table 2, the owner or operator shall submit to the department a copy of the laboratory results and cover letter required under par. (a) within 10 days after the results are received. The cover letter shall include a summary of values that attain or exceed a preventive action limit or enforcement standard, the wells at which the preventive action limit or enforcement standard was attained or exceeded, and a preliminary analysis of the cause and significance of each concentration in accordance with s. NR 140.24 (1) (a) or 140.26 (1) (a).

SECTION 117. NR 507.26 (3) (intro.), (a) (Note) and (b) (intro.), 1., 2., and 4. are amended to read:

507.26 (3) ALL OTHER ENVIRONMENTAL MONITORING RESULTS. The owner or operator shall submit all sampling results and water elevation data to the department within ~~60~~ 90 days of the end of the sampling period or of obtaining in-field gas sampling results, unless otherwise directed by the department in writing. An explanation of any deviation from the approved sampling plan or analytical procedures shall be submitted at the same time~~.~~ subject to all of the following requirements:

(a) **Note:** The specific data formats for electronic monitoring result submittals can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707-7921, ~~(608) 266-2111, waste.management@dnr.state.wi.us.~~ dnrwastemanagement@wisconsin.gov.

(b) *Sampling results.* The owner or operator shall ~~submit~~ report all sampling results at or above the limit of detection as values. Results below the limit of detection shall be reported as less than the limit of detection. In addition, the owner or operator shall submit all of the following information for each sampling ~~round~~ event:

1. The limit of detection and the limit of quantitation for each parameter with a ~~public health related~~ groundwater standard in s. NR 140.10, Table 1 or s. NR 140.12, Table 2. The limit of detection and the limit of quantitation shall be determined in accordance with a method specified by the department as required in s. NR 149.48 (2) and (3).

2. A "J" flag result qualifier for each detected parameter with a reported value ~~between~~ at or above the limit of detection ~~and~~ but below the limit of quantitation: LOD ≤ Result < LOQ.

4. Quality control flags identified as I, II, and III to indicate all of the following:

SECTION 118. NR 507.26 (3) (b) 4. a. and b. are repealed and recreated to read:

NR 507.26 (3) (b) 4. a. Report an "F" for quality control flag I if the parameter is detected in the sample at or above the limit of detection and is also detected in its associated method blank, trip blank, or field blank at a concentration that exceeds the highest of any of the following: the limit of detection, five percent of the PAL or lowest applicable regulatory limit, or ten percent of the measured concentration in the sample. Otherwise, report an "M".

b. Report an "F" for quality control flag II if the sample failed to meet the analytical method's preservation or holding time requirements. Otherwise, report an "M".

SECTION 119. NR 507.26 (3) (b) 4. b. (Note) is repealed.

SECTION 120. NR 507.26 (3) (b) 4. c. is repealed and recreated to read:

c. Report an "F" for quality control flag III if the parameter failed any quality control requirements specified by the analytical method or ch. NR 149. Otherwise, report an "M".

SECTION 121. NR 507.27 is repealed and recreated to read:

NR 507.27 Calculation of groundwater standards. (1) BASELINE AND DETECTION MONITORING. The owner or operator shall calculate and submit to the department for approval proposed PALs for all baseline and detection monitoring parameters that do not have s. NR 140.10 or 140.12 standards, except field pH, temperature and groundwater elevation, and ACLs for inorganic substances for which an exemption to a standard has been granted. Calculations of PALs and ACLs for each well shall be based on baseline data representative of groundwater quality not affected by the landfill unless the department determines that data from a well with similar groundwater quality may be used. A landfill owner or operator may propose or the department may initiate a reevaluation of approved groundwater standard exemptions and approved PALs and ACLs if background concentrations change.

(2) PREVENTIVE ACTION LIMITS. The owner or operator of an existing solid waste disposal facility shall calculate PALs for baseline and detection monitoring parameters at the direction of the department. Applicants for a proposed solid waste disposal facility shall calculate and propose in the plan of operation PALs specific to each parameter and well, for all baseline and detection monitoring

parameters that do not have s. NR 140.10 or 140.12 standards and all wells to be used in the monitoring program, unless otherwise directed by the department in writing. Detection monitoring parameters are listed in ch. NR 507 Appendix I Tables 1, 1A, and 2. Calculations for PALs shall be done in accordance with the methods specified in s. NR 140.20. PALs are not required for pH, temperature, or groundwater elevation. The department may require the owner or operator to conduct additional sampling if the department determines that the data used to calculate a PAL is not representative of baseline water quality not affected by the landfill.

(3) ALTERNATIVE CONCENTRATION LIMITS. Applicants for proposed solid waste disposal facilities shall calculate and propose in the plan of operation ACLs specific to each substance and well, that correspond to each exemption the department has granted to a groundwater standard listed in s. NR 140.10 or NR 140.12, under s. NR 140.28, for all wells to be used in the monitoring program, unless otherwise directed by the department in writing. The owner or operator of an existing solid waste disposal facility may request an exemption under s. NR 140.28 and propose calculated ACLs for any inorganic public health or welfare parameter that has established standards listed in s. NR 140.10 or 140.12 in accordance with s. NR 507.29.

Note: Guidance for calculations is available from the department of natural resources, bureau of waste and materials management, 101 South Webster Street, P.O. Box 7921, Madison, WI 53707-7921, dnrwastemanagement@wisconsin.gov.

SECTION 122. NR 507.29 (intro.) is amended to read:

NR 507.29 Exemptions to groundwater standards. The owner or operator of a solid waste disposal facility may request an exemption to groundwater standards in accordance with ~~ss.~~ s. NR 140.28 ~~and 500.08 (4)~~ and this section. The exemption request shall be submitted to the department in writing. The department may require additional information in order to review the exemption request.

SECTION 123. NR 507.30 (1) (a) and (2) are amended to read:

NR 507.30 (1) (a) The owner or operator shall notify the department in writing if any value attains or exceeds a groundwater standard. The notification shall specify the parameters for which standards have been attained or exceeded and the wells at which the standard was attained or exceeded and shall provide a preliminary analysis of the cause and significance of each concentration in accordance with s. NR 140.24 (1) (a) or 140.26 (1) (a). The sampling results and ~~2 copies of the~~ notification shall be submitted to the department within ~~60~~ 90 days ~~from~~ of the end of the sampling period unless otherwise approved by the department in writing.

(2) WATER SUPPLY WELLS. The owner or operator shall notify the department in writing if any value in a water supply sample attains or exceeds a groundwater standard or any other substances of concern are detected in the sample. The notification shall be in accordance with ~~ss.~~ s. NR 507.26 (2) ~~and 507.30 (1)~~.

SECTION 124. NR 507 Appendix I Table 1, Table 1A, Table 2, Table 3, and Table 4 are amended to read:

Table 1

DETECTION GROUNDWATER MONITORING FOR LANDFILLS ACCEPTING MUNICIPAL SOLID WASTE[1]

Waste Type	Detection Parameters[1~~2~~]	Frequency for All Wells	Frequency for Subtitle D Wells[4]
Municipal solid waste	Alkalinity Chloride Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness (Total, Ca + Mg)	Semi-annual	Semi-annual
	~~VOC scan[2]~~ Volatile Organic Compounds (VOCs)[3]	Annual	Semi-annual
Municipal solid waste combustor residue	Alkalinity Boron Cadmium Chloride Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness (Total, Ca + Mg) Lead Selenium Sulfate	Semi-annual	Semi-annual

1 The color, odor, and turbidity shall be recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.

~~1~~2 Additional parameters are required if other waste types are accepted at the landfill. See Table 2.

~~2~~3 Refer to ch. NR 507 Appendix III for a list of the individual ~~volatile organic compounds~~ VOCs required ~~for a VOC Scan~~.

4 The monitoring interval for Subtitle D Wells during the active life and proof of owner financial responsibility portion of the perpetual long-term care period shall be no less frequent than annual.

Table 1A

DETECTION GROUNDWATER MONITORING FOR CCR WELLS AT CCR LANDFILLS[1]

Waste Type	Detection Parameters~~1~~2	Monitoring Frequency
Coal combustion residuals	Alkalinity Boron Calcium Chloride Fluoride Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness (Total, Ca + Mg) Total Dissolved Solids (TDS) Sulfate	Semi-annual

1 The color, odor and turbidity shall be recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.

~~1~~2 Groundwater samples collected at CCR wells must be unfiltered.

Table 2

DETECTION GROUNDWATER MONITORING FOR LANDFILLS ACCEPTING WASTE TYPES OTHER THAN MUNICIPAL SOLID WASTE[1]

Waste Type	Detection Parameters	Frequency for All Wells
Paper mill sludge	Ammonia nitrogen Alkalinity Chloride ~~COD~~ Dissolved Organic Carbon (DOC) Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness (Total, Ca + Mg)	Semi-annual

	Nitrate + Nitrite (as N) Sulfate	
Fly or bottom ash[1~~2~~]	Alkalinity Boron ~~COD~~ Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness (Total, Ca + Mg) Sulfate	Semi-annual
Foundry waste	Alkalinity ~~COD~~ Field conductivity (at 25°C) Field pH Field temperature Fluoride Groundwater elevation Hardness (Total, Ca + Mg) Sodium	Semi-annual
Demolition waste	Demolition monitoring requirements are listed in ch. NR 503	
Other solid waste	As specified in writing by the department	

1 The color, odor and turbidity shall be recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.

~~1~~2 Detection monitoring parameters apply to all wells monitoring CCR landfills that are not defined as CCR wells under s. NR 500.03 (26y).

Table 3

BASELINE AND ASSESSMENT GROUNDWATER MONITORING
PUBLIC HEALTH AND WELFARE PARAMETERS[1]

All Wells	Additional Parameters for Subtitle D Wells	Additional Parameters for CCR Wells
Arsenic Barium Cadmium Chromium Copper Fluoride Lead Manganese Mercury Nitrate + Nitrite (as N)	Antimony Beryllium Cobalt Nickel Thallium Vanadium	Antimony Beryllium Cobalt Lithium Molybdenum Thallium Ra-226 and Ra-228, combined[1~~2~~]

Selenium Silver Sulfate Zinc		

1 The color, odor and turbidity shall be recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.

~~1~~2 The maximum contaminant level (MCL) for combined radium is 5 pCi/L under s. NR 809.50 (1) (a).

Table 4

DETECTION LEACHATE MONITORING
FOR ALL LANDFILLS[1,2]

Municipal Solid Waste and Municipal Solid Waste Combustor Residue	Paper Mill Sludge	Fly or Bottom Ash	Foundry Waste
The volume of the leachate removed shall be recorded at least monthly and reported to the department semi-annually.			
Leachate head levels shall be sampled quarterly and reported to the department semi-annually, unless otherwise required by s. NR 507.21 (3) (b).			
Semi-Annual Monitoring Parameters			
~~BOD_5~~ Biological Oxygen Demand (BOD_5) Field conductivity (at 25°C) Field pH Alkalinity Cadmium Chloride ~~COD~~ Hardness (Total, Ca + Mg) Iron Lead Manganese Mercury Ammonia nitrogen Total Kjeldahl nitrogen Sodium Sulfate Total suspended solids ~~VOC scan~~[3]VOCs Other parameters	BOD_5 Field conductivity (at 25°C) Field pH Alkalinity Cadmium Chloride ~~COD~~ Hardness (Total, Ca + Mg) Iron Lead Manganese Mercury Ammonia nitrogen Total Kjeldahl nitrogen Sodium Sulfate Total organic carbon (TOC) Total suspended solids ~~VOC scan~~[3]VOCs	BOD_5 Field conductivity (at 25°C) Field pH Alkalinity Boron Cadmium Chloride ~~COD~~ Hardness (Total, Ca + Mg) Iron Lead Manganese Mercury Selenium Total suspended solids **Additional Parameters for CCR Landfills** Antimony Beryllium Cobalt Fluoride Lithium	BOD_5 Field conductivity (at 25°C) Field pH Alkalinity Cadmium Chloride ~~COD~~ Fluoride Hardness (Total, Ca + Mg) Iron Lead Manganese Mercury Sodium Sulfate Total suspended solids ~~VOC scan~~[3]VOCs

specified by waste type in this table if accepted at the landfill		Molybdenum Ra^{226} and Ra^{228} combined Sulfate Thallium	
Annual Monitoring Parameters			
Semivolatile organic ~~compound scan~~[4] compounds (SVOCs)	~~Semivolatile organic compound scan~~[4] SVOCs	~~Semivolatile organic compound scan~~[4] SVOCs	~~Semivolatile organic compound scan~~[4] SVOCs

1 Leachate monitoring for other solid waste not included in this table may be done as specified by the department in writing.

2 Leachate samples may not be filtered. The color, odor and turbidity shall also be ~~noted~~ recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.

3 Refer to ch. NR 507 Appendix III for a list of the individual ~~volatile organic compounds~~VOCs required ~~for a VOC Scan~~.

4 Refer to ch. NR 507 Appendix IV for a list of the individual ~~semivolatile organic compounds~~ SVOCs required ~~for a semivolatile organic compound scan~~.

SECTION 125. NR 507 Appendix I Table 4A is created to read:

Table 4A

LEACHATE RECIRCULATION MONITORING[1]

Monitoring Point Type	Parameters	Monitoring and Reporting Frequency
Leachate collection system (per leachate drainage basin for liquid mass balance)	Volume of leachate extracted Volume of leachate recirculated Precipitation	Record monthly[2]
Leachate head well	Depth of leachate[3] Elevation, leachate head	Monitor monthly in each leachate drainage basin where recirculation has been implemented Report semi-annually
Leachate collection tank or sump	BOD_5 Ammonia nitrogen Field pH Field conductivity (at 25°C) Alkalinity Hardness (Total, Ca + Mg)	Monitor quarterly Report semi-annually
	VOCs[4]	Monitor and report semi-annually

Gas collection system (per leachate drainage basin)	Gas volume extracted (1,000 cu ft./month)	Monitor monthly Report semi-annually (continues 3 years after recirculation)
Gas extraction well	Percent open interval (gas well screen)[5] Depth of leachate[6]	Monitor and report annually

1 Leachate samples may not be filtered. The color, odor, and turbidity shall also be recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.
2 Report annually in annual report. Not reported in electronic format.
3 Measurement of leachate head on the liner, in feet.
4 Refer to ch. NR 507 Appendix III for a list of the individual VOCs required.
5 Refer to s. NR 506.07 (4r).
6 Vertical measurement of liquid in gas extraction well, in feet.

SECTION 126. NR 507 Appendix I Table 5 is amended to read:

Table 5

DETECTION LYSIMETER MONITORING
FOR ALL LANDFILLS[1,2]

Municipal Solid Waste	Municipal Solid Waste Combustor Residue	Paper Mill Sludge	Fly or Bottom Ash	Foundry Waste
The volumes of lysimeter fluid removed shall be recorded at least monthly and reported to the department semi-annually.				
Semi-annual Monitoring Parameters				
Field conductivity (at 25°C) Field pH Alkalinity Hardness (Total, Ca + Mg) Chloride ~~COD~~ Total Kjeldahl nitrogen Sodium Sulfate Other parameters specified by waste type in this table if accepted at the	Field conductivity (at 25°C) Field pH Alkalinity Cadmium Hardness (Total, Ca + Mg) Chloride ~~COD~~ Lead Total Kjeldahl nitrogen Sodium Sulfate	Field conductivity (at 25°C) Field pH Alkalinity Hardness (Total, Ca + Mg) Chloride ~~COD~~ Total Kjeldahl nitrogen Sodium Sulfate TOC	Field conductivity (at 25°C) Field pH Alkalinity Boron Hardness (Total, Ca + Mg) Chloride ~~COD~~ Total Kjeldahl nitrogen Sulfate	Field conductivity (at 25°C) Field pH Alkalinity Hardness (Total, Ca + Mg) Chloride ~~COD~~ Fluoride Total Kjeldahl nitrogen Sulfate

landfill				
Annual Monitoring Parameters				
~~VOC scan~~[3]VOCs	~~VOC scan~~[3]VOCs	~~VOC scan~~[3]VOCs		~~VOC scan~~[3]VOCs

1 Lysimeter monitoring for landfills accepting waste not included in this table shall be done as specified by the department in writing.

2 Lysimeter samples may not be filtered. When only small sampling volumes are obtained, ~~the~~ VOC ~~scan~~ analysis shall take precedence. The color, odor and turbidity shall also be ~~noted~~ recorded for all samples in accordance with ss. NR 507.17 (1) (b) and 507.26 (1), but do not need to be reported in electronic format.

3 Refer to ch. NR 507 Appendix III for a list of the individual ~~volatile organic compounds~~ VOCs required ~~for a VOC scan~~.

SECTION 127. NR 507 Appendix I Table 6 is created to read:

Table 6
GAS MONITORING FOR LANDFILLS ACCEPTING
MUNICIPAL SOLID WASTE

Monitoring Point Type	Parameters	Monitoring and Reporting Frequency
Gas extraction well[1]	Header pressure (inches of water) Well head pressure (inches of water) Gas temperature (deg. F) Carbon dioxide (volume %) Methane (volume %) Oxygen (volume %) Gas flow rate (SCFM) Balance Gas (volume %)	Monitor monthly Report semi-annually
	Percent open interval (gas well screen)[2] Depth of leachate[3]	Monitor and report annually
Blower / Compressor[4]	Header pressure (inches of water) Gas temperature (deg. F) Carbon dioxide (volume %) Methane (volume %) Oxygen (volume %) Gas flow rate (SCFM) Balance gas (volume %) Gas volume extracted (1,000 cu ft./month)	Monitor monthly Report semi-annually

	Total reduced sulfur (ppmv as S) VOCs	Monitor and report annually
Gas monitoring well (gas probe)	Methane (volume %) Oxygen (volume %)	Monitor and report quarterly[5]
Site conditions	Ground conditions[6] Ambient air temperature (deg. F) Barometric pressure (mm of Hg) Trend in barometric pressure	Monitor and report in conjunction with each gas probe monitoring event

1 The monitoring program for a temporary vertical or horizontal gas extraction well shall be the same as a permanent vertical gas extraction well. The intended use, design and monitoring for a temporary well shall be included in the landfill's plan of operation.

2 Refer to s. NR 506.07 (4r).

3 Vertical measurement of liquid in gas extraction well, in feet.

4 Monitoring points may be shared with other licensed landfills at a facility; however, at a minimum each licensed landfill shall include a point where landfill gas quality and flow rate parameters are monitored and reported to evaluate gas collection from each licensed landfill separately.

5 The monitoring interval for gas monitoring wells during the active life and proof of owner financial responsibility portion of the perpetual long-term care period shall be no less frequent than quarterly.

6 Note whether the ground is frozen, wet, or dry.

SECTION 128. NR 507 Appendix III is amended to read:

VOLATILE ORGANIC COMPOUNDS FOR DETECTION MONITORING[1] AT MUNICIPAL SOLID WASTE LANDFILLS

Common name[2]	CAS RN[3]	Synonyms
Acetone[4]	67-64-1	2-Propanone
Benzene	71-43-2	
Bromodichloromethane	75-27-4	Dichlorobromomethane
Bromoform	75-25-2	Tribromomethane
Carbon disulfide[4]	75-15-0	
Carbon tetrachloride	56-23-5	Tetrachloromethane
Chlorobenzene	108-90-7	Monochlorobenzene
Chloroethane	75-00-3	Ethyl chloride
Chloroform	67-66-3	Trichloromethane
Dibromochloromethane	124-48-1	Chlorodibromomethane
1,2-Dibromo-3-chloropropane	96-12-8	DBCP
1,2-Dibromoethane	106-93-4	EDB; Ethylene dibromide
o-Dichlorobenzene	95-50-1	1,2-Dichlorobenzene

m-Dichlorobenzene	541-73-1	1,3-Dichlorobenzene
p-Dichlorobenzene	106-46-7	1,4-Dichlorobenzene
Dichlorodifluoromethane	75-71-8	Freon 12, Difluorodichloromethane
1,1-Dichloroethane	75-34-3	
1,2-Dichloroethane	107-06-2	Ethylene dichloride
1,1-Dichloroethylene	75-35-4	Vinylidene chloride
cis-1,2-Dichloroethylene	156-59-2	cis-1,2-Dichloroethene
trans-1,2-Dichloroethylene	156-60-5	trans-1,2-Dichloroethene
1,2-Dichloropropane	78-87-5	
cis-1,3-Dichloropropylene	10061-01-5	cis-1,3-Dichloropropene, Z-Dichloropropylene
trans-1,3-Dichloropropylene	10061-02-6	trans-1,3-Dichloropropene, E-Dichloropropylene
Ethylbenzene	100-41-4	
Methyl bromide	74-83-9	Bromomethane
Methyl chloride	74-87-3	Chloromethane
Methylene bromide	74-95-3	Dibromomethane
Methylene chloride	75-09-2	Dichloromethane
Methyl ethyl ketone[‡]	78-93-3	2-Butanone; MEK
Methyl tert-butyl ether	1634-04-4	MTBE
Naphthalene	91-20-3	
Styrene	100-42-5	Ethenylbenzene
Tetrachloroethylene	127-18-4	Perchloroethylene; Tetrachloroethene; PCE
Tetrahydrofuran[‡]	109-99-9	THF
Toluene	108-88-3	Methylbenzene
1,2,4-Trichlorobenzene	120-82-1	
1,1,1-Trichloroethane	71-55-6	Methylchloroform
1,1,2-Trichloroethane	79-00-5	
Trichloroethylene	79-01-6	Trichloroethene; TCE
Trichlorofluoromethane	75-69-4	Fluorotrichloromethane, Freon 11
Vinyl chloride	75-01-4	Chloroethene
Xylene (total) [see note 4]	1330-20-7	Dimethylbenzene

1. Includes the individual Volatile Organic Compounds (VOCs) necessary when ~~a~~ VOCs ~~scan is~~ are required under ch. NR 507. ~~Acetone, Carbon disulfide, Methyl ethyl ketone, and Tetrahydrofuran are exempted if EPA Method 8021 is used for the analysis~~.
2. Common names are those widely used in government regulations, scientific publications and commerce; synonyms exist for many chemicals.
3. Chemical Abstracts Service registry number.
4. Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN

1330-20-7).

Note: Wisconsin DNR GEMS parameter numbers for the substances listed in ch. NR 507 Appendix III can be found at ~~http://www.dnr.wi.gov/org/aw/wm/monitor/.~~ https://dnr.wisconsin.gov/topic/Landfills/Data.html.

SECTION 129. NR 508.04 (intro.) and (3) are amended to read:

NR 508.04 Responses when a groundwater standard is attained or exceeded at any groundwater monitoring well or water supply well. If a PAL, ACL, or ES is attained or exceeded at any groundwater monitoring well or water supply well according to s. NR 140.14 and the value is confirmed, the owner or operator shall comply with subs. (1) and (2) and may be required, either by the department or under s. NR 508.05 (5), to comply with subs. (3) and (4).

(3) The owner or operator shall implement immediate or interim actions in accordance with ch. NR 708 if warranted or directed by the department. If required by the department, the owner or operator shall develop a site investigation workplan and a site investigation report in accordance with ss. NR 716.05 to 716.11 and 716.15 to 716.17. If a site investigation report is submitted under s. NR 716.15, it shall include proof of financial responsibility to comply with s. NR 520.05 (1). The department may impose additional requirements on the owner or operator based on the results of the site investigation in accordance with s. NR 716.17.

SECTION 130. NR 508.05 (2), (3) (b), and (5) (a) are amended to read:

NR 508.05 (2) The department may approve an alternate assessment monitoring program if the only parameters ~~which~~ that are at or above the groundwater standards are the indicator parameters or the inorganic detection monitoring parameters listed in ch. NR 507 Appendix I, Tables 1 through 2.

(3) (b) Annually, the owner or operator shall sample and analyze the leachate for the parameters listed in ch. NR 507 Appendix II. Within 14 days after ~~obtaining~~ the laboratory reports the leachate sampling results, the owner or operator shall place the results in the operating record. Within ~~60~~ 90 days ~~after~~ of the end of the sampling period, the owner or operator shall submit the leachate sampling results to the department.

(5) (a) Notify the clerk of each municipality within which the landfill is located and whose boundary is within ~~1,200~~ 1,500 feet of the limits of filling of any sampling result ~~which~~ that exceeds an enforcement standard. ~~The owner or operator shall notify the clerk~~ Notification shall be completed for each sampling event with a confirmed ES attainment or exceedance within 14 days of receiving the sample result.

SECTION 131. NR 508.06 (2) (c) is amended to read:

NR 508.06 (2) (c) If the concentrations of all constituents sampled under par. (b) are shown to be at or below a PAL or ES under s. NR 140.10 or an approved ACL for two consecutive sampling events at the point of standards application, the owner or operator may return to detection monitoring of the CCR landfill. The owner or operator shall notify the department that detection monitoring is resuming for the CCR landfill within ~~60~~ 90 days ~~after~~ of the end of the sampling period. The notification shall be submitted to the department under s. NR 506.17 (4), placed in the written operating record under s. NR 506.17 (2) and posted on a publicly accessible internet site under s. NR 506.17 (3).

SECTION 132. NR 509.04 (1), (2), (3), (5) (intro.) and (5) (b) are amended to read:

NR 509.04 (1) INSPECTION REQUEST. Any person intending to establish a new landfill, an expansion of an existing landfill or a ~~noncommercial~~ soil borrow source designated to be used in the construction, operation or closure of a specific landfill shall submit a written request to the department for an initial site inspection for the purpose of evaluating compliance with the applicable locational criteria and performance standards of s. NR 504.04.

(2) SUBMITTAL REQUIREMENTS FOR INSPECTION REQUEST. Any person submitting a request to the department to perform an initial site inspection shall comply with all requirements of this section and ~~s.~~ss. NR 500.05 (5) to (8) and 500.058.

(3) DEPARTMENT RESPONSE. The department shall conduct an initial site inspection within ~~22 business~~ 30 days after receipt of the request, the appropriate fee and ~~receipt of~~ the information required in this section. Follow up inspections may be necessary depending on the season to identify any obscured features of the proposed property such as wetlands. The department shall render a preliminary opinion regarding the suitability of the site location and identify any additional studies or information that shall be submitted to determine if a proposed landfill or soil borrow source complies with the applicable locational criteria and performance standards ~~of~~ under s. NR 504.04 within ~~22 business~~ 30 days of completing the inspection. A favorable evaluation under this section does not guarantee a favorable initial site report opinion.

(5) CONTENTS OF INSPECTION REQUEST FOR A SOIL BORROW SOURCE FOR A SPECIFIC SOLID WASTE LANDFILL. Landfill owners or operators shall submit an initial site inspection request for each proposed soil borrow source as specified in s. NR 504.075. An initial site inspection request for a ~~noncommercial~~ soil borrow source designated to be used in the construction, operation, or closure of a specific landfill shall include all of the following:

(b) A preliminary identification of all potential effects on wetlands, surface waters ~~or areas that contain,~~ and habitats that may be suitable for threatened or endangered species ~~per~~ under s. 29.604, Stats.~~, and per s. NR 27.01 (8).~~

SECTION 133. NR 509.05 (1) and (2) are amended to read:

NR 509.05 Submittal requirements. (1) GENERAL PROVISIONS. Prior to submitting a feasibility report, an applicant shall obtain an initial site report opinion from the department. The initial site report shall follow the general submittal requirements of ~~s.~~ss. NR 500.05 and 500.058, address all requirements of this section, and include the department's initial site inspection evaluation and all pertinent information submitted for the initial site inspection~~, and may contain any or all of the information identified in ch. NR 510~~.

(2) COMPLETENESS AND DEPARTMENT OPINION. Within 30 days after an initial site report is ~~submitted~~ received, the department shall determine whether or not the initial site report is complete. The department shall determine the completeness of the initial site report by determining whether or not the minimum requirements of this section have been met. If the report is incomplete, the department shall notify the applicant, in writing, and specify the information ~~which~~ that shall be submitted to make the initial site report complete. If the report is complete, the department shall notify the applicant in writing. ~~and render an opinion as to whether the proposed property has potential, limited potential, or little or no potential for development as a landfill. This notification shall be done within 60 days after the determination of completeness.~~ Within 60 days after the determination of completeness, the department shall render a written opinion as to whether the proposed property has potential for development of a landfill and will identify any potential constraints on development that the department identifies from the initial site report or other available information; or has little to no potential for development of a landfill based on constraints the department believes cannot be, or will be difficult to overcome. A favorable opinion under this section does not guarantee a favorable feasibility determination.

SECTION 134. NR 509.06 (3) is amended to read:

NR 509.06 (3) DOCUMENTATION OF PRESENT LAND USES. A description of the current land uses~~, with particular emphasis on~~ the and a detailed discussion of known recreational areas, historical~~,~~ and archaeological areas, ~~areas that contain~~ wildlife and plant habitat areas that may be suitable for threatened or endangered species ~~per~~ under s. 29.604, Stats.~~, and per s. NR 27.01 (8) and~~ state or local natural areas, and county forest lands. If the landfill owner proposes to accept municipal solid waste or other putrescible waste, the initial response letter from the federal aviation administration concerning any airports whose runway end is located within 5 miles of the anticipated limits of filling shall be included in

the report.

SECTION 135. NR 510 is repealed.

SECTION 136. NR 512.05 is renumbered NR 512.05 (1) and amended to read:

NR 512.05 General submittal requirements. (1) ALL LANDFILLS. An applicant proposing to construct a new landfill or expand an existing landfill shall submit a feasibility report and related materials in accordance with ss. NR 500.05, 500.055, 500.058, and this chapter. The feasibility report shall address all department review comments on the initial site report ~~and any applicable pre-feasibility report~~. ~~If the applicant requests any exemptions to the locational criteria and performance standards listed in s. NR 504.04, justification for the request shall be provided in the narrative section of the feasibility report. Applicants proposing an alternative design to the requirements contained in ss. NR 504.05, 504.06, 504.07, 504.08 and 504.09 shall include an analysis that predicts whether the proposed landfill will meet or exceed the performance standards of s. NR 504.04 (4) (d) regarding groundwater quality.~~ If the applicant requests any general exemptions under s. NR 500.08 (4), the applicant shall provide the information for justification of the request, as specified in s. NR 500.08 (4), in the narrative of the feasibility report.

SECTION 137. NR 512.05 (2) is created to read:

NR 512.05 (2) VERTICAL-ONLY EXPANSION. For a proposed vertical expansion of an existing landfill, the geotechnical information required by ss. NR 512.09, 512.10, and 512.11 (2), (4), and (5) may be excluded from the feasibility report, unless required in writing by the department.

SECTION 138. NR 512.06 (2) and (3) are amended to read:

NR 512.06 (2) SUBMISSION OF REPORTS. An applicant shall submit a feasibility report to the department in accordance with ss. 289.21 to 289.29, Stats. At the same time, the applicant shall submit a copy of the initial site report, the department's initial site report opinion, ~~any applicable pre-feasibility report~~ and the feasibility report to each participating municipality under s. 289.33 (6) (b), Stats. The applicant shall notify the department of when and to whom the specified copies were submitted.

(3) COMPLETENESS. Within 60 days after a feasibility report is submitted, the department shall determine whether or not the feasibility report is complete. The department shall determine the completeness of the feasibility report by determining whether ~~or not~~ the items specified in the department's initial site report opinion letter and the minimum requirements of this chapter have been

met, and whether any additional information is necessary for the department to make a feasibility determination. If the report is incomplete, the department shall notify the applicant in writing and specify the information ~~which~~ that shall be submitted in an addendum before the feasibility report can be deemed complete. If the report is complete, the department shall publish a class I public notice in accordance with s. 289.25 (3), Stats., and issue a preliminary determination stating whether or not an environmental impact statement is required. ~~The department may require the applicant to submit additional information after determining that the feasibility report is complete if the department establishes that the feasibility of the proposed landfill cannot be determined without the additional information.~~ Notwithstanding a determination of completeness, the department may require the applicant to submit additional information during the feasibility review if the department cannot determine the feasibility of the proposed landfill without the additional information.

SECTION 139. NR 512.06 (3) (Note) and (4) are created to read:

NR 512.06 (3) Note: Section NR 504.04 (2) requires that an applicant submit a completed s. NR 812.43 variance request to the department before the department may grant an exemption to s. NR 504.04 (3) (f). In order for the department's variance request decision to be made in conjunction with the feasibility determination, the department recommends the completed variance request be submitted to the department's drinking water and groundwater program for each well exemption request under s. NR 504.04 (3) (f) within 10 days after the department's determination that the feasibility report is complete. Section NR 812.43 (1) (a) 1. requires that if the application is submitted by the landfill owner, the application shall include documentation that written notification of the variance request has been provided to any well owner meeting conditions under the separation distance specified in s. NR 812.08 Table A.

(4) DISTRIBUTION. Immediately after the applicant receives notification of the department's determination that the feasibility report is complete, the applicant shall distribute copies of the feasibility report to the persons specified under s. 289.32, Stats.

SECTION 140. NR 512.085 is repealed and recreated to read:

NR 512.085 Site-specific geotechnical investigation. (1) The applicant shall perform laboratory and field investigations to define the physical characteristics of the proposed landfill's location. The applicant shall obtain sufficient site-specific geotechnical information to define the subsurface geological conditions and the hydrogeologic and groundwater quality conditions both inside and outside the proposed limits of filling.

(2) Geotechnical information shall be sufficient to identify all of the following site-specific conditions:

(a) Bedrock depth, either confirmed through borings or inferred based on regional information, geology, competency, and hydrogeology.

(b) The geological, geotechnical, and hydrogeological characteristics of each major soil unit underlying the site to a depth of at least 25 feet below the proposed sub-base grade.

(c) The presence and frequency of joints, fractures, voids, solution openings, faults, or other structural features in the bedrock or soil units.

(d) Identification and description of any significant groundwater flow paths, such as fractured flow or major sand seams, that may be a constraint to effective monitoring capability or may warrant additional monitoring wells in certain locations.

(e) The groundwater table elevations throughout the site and any seasonal fluctuations.

(f) The presence and extent of any perched water tables.

(g) Horizontal and vertical groundwater hydraulic gradients and groundwater flow paths in soil and bedrock below the site.

(h) The presence of any hydrogeologic confining units.

(i) The presence of any aquifers and their current use as a source of drinking water.

(j) Groundwater quality in soil units and bedrock.

(k) Any additional site-specific information the department identifies as necessary to evaluate the feasibility of the landfill.

(3) The minimum requirements for a site-specific geotechnical investigation are provided in ss. NR 512.09, 512.10, and 512.11. Unless otherwise approved by the department in writing, the site-specific geotechnical investigation must meet or exceed those minimum requirements. Achieving the minimum requirements provided in ss. NR 512.09, 512.10, and 512.11 does not guarantee that the applicant will obtain sufficient information to comply with sub. (1). The department may require additional geotechnical investigation in order to determine that the feasibility report is complete.

(4) The applicant may submit a proposal to the department for an alternative geotechnical investigation and data presentation from the requirements in s. NR 512.09, 512.10, or 512.11. A proposal for an alternative geotechnical investigation shall include a detailed description of the proposed alternative investigation, an explanation of how the alternative investigation will provide information sufficient to comply with subs. (1) and (2), detailed explanations of the rationale for the proposed differences between the minimum requirements in s. NR 512.09, 512.10, or 512.11 and the proposed alternative investigation, and the anticipated benefits of the proposed alternative investigation. The department shall provide a written opinion on the proposal and identify any deficiencies in the proposed alternative investigation that must be addressed. A favorable opinion of a proposed alternative

geotechnical investigation does not guarantee that the applicant will obtain sufficient information to meet the requirements of subs. (1) and (2). The department may require additional geotechnical investigations before making a determination that the feasibility report is complete.

SECTION 141. NR 512.09 (intro.) is repealed and recreated:

NR 512.09 Minimum site-specific information. At a minimum, the site-specific geotechnical investigation shall include all of the following specified requirements, unless an alternative geotechnical investigation proposed under s. NR 512.085 (4) has been completed and has met the requirements of s. NR 512.085 (1) and (2):

SECTION 142. NR 512.09 (1) (d) and (2) (e) are amended to read:

NR 512.09 (1) (d) Samples shall be collected and retained and boring logs shall be prepared in accordance with ss. NR 507.05, ~~and~~ 507.14, and 512.09 (5).

(2) (e) All wells shall be designed, installed, developed, documented, and sampled in accordance with ch. NR 141 and ss. NR 507.06, 507.07, 507.14 ~~and~~, 507.17, and 507.18. Alternative methods of well design and installation ~~which~~ shall not be used unless they achieve comparable results ~~shall be approved by~~ and the department provides prior ~~to well construction~~ written approval.

SECTION 143. NR 512.09 (2) (e) (Note) is repealed.

SECTION 144. NR 512.09 (4) (e) to (g) and (5) are amended to read:

NR 512.09 (4) (e) After each well has been properly developed, successive water level measurements shall be taken until stabilized readings are obtained. Stabilized water level measurements shall be obtained on a monthly basis for a minimum of 6 months prior to submittal of the feasibility report. After this period, quarterly water level measurements shall be obtained for at least 4 quarters; or for contiguous expansions of existing landfills, water levels at newly installed and existing monitoring wells may be collected in conjunction with detection monitoring events.

(f) Stabilized water level measurements shall be obtained on a monthly basis for a minimum of 6 months prior to submittal of the feasibility report from surface water bodies including streams, lakes, ponds, drainage ditches, and wetlands located within 1,000 feet of the proposed limits of filling. After this period, quarterly water level monitoring shall be performed for at least 4 quarters; or for contiguous,

expansions of existing landfills, water levels of surface water bodies may be collected in conjunction with routine monitoring events.

(g) At least 4 rounds of baseline groundwater monitoring shall be performed on all observation wells and piezometers ~~located outside the proposed limits of filling which~~ that were installed to evaluate the proposed property in accordance with s. NR 507.18 and submitted along with the feasibility report.

(5) SAMPLE RETENTION. All soil and bedrock samples collected from the proposed property shall be retained in accordance with s. NR 507.05 (1) (e), except for soil and bedrock samples collected as part of a previous geotechnical investigation and included in a report previously approved by the department.

SECTION 145. NR 512.10 (4) is amended to read:

NR 512.10 (4) APPENDIX. ~~All raw data including~~ Appendices shall include all data collected in the field, laboratory test reports, and reports or forms documenting field activities. This data includes all boring logs, soil tests, hydraulic conductivity tests, water level measurements, baseline water quality laboratory reports, and department well construction, well development, and well information forms ~~shall be included in the appendices of the report~~.

SECTION 146. NR 512.11 (3) and (5) are amended to read:

NR 512.11 (3) WATER TABLE MAPS. At least 2 water table contour maps shall be submitted. One map shall be based on the highest set of monthly water table elevations measured in the observation wells installed at the proposed landfill's location and the other map shall be based on the lowest set of monthly water table elevations measured in the observation wells installed at the proposed landfill's location. For each sampling ~~round~~ event, all water level elevations shall be measured on the same day. The water table maps shall show all observation wells and the measured water level elevation at each observation well. Any observed variations in flow direction shall be discussed in the narrative of the report. For ~~a contiguous, horizontal, or vertical~~ an expansion of an existing landfill, the water table contour maps shall be expanded to include the observation wells and measured water table elevations at each observation well for the existing landfill and each additional landfill on the property and adjacent properties owned or operated by the applicant. Inferred contours made beyond the extent of the observation well field shall be shown with dashed lines. If 3 or more bedrock wells are installed, a bedrock piezometric map shall be ~~prepared~~ provided.

(5) FLOW NET. A cross-section flow net shall be constructed parallel to the direction of groundwater flow to show the distribution of recharge and discharge.

SECTION 147. NR 512.11 (6) is created to read:

NR 512.11 (6) BORING AND WELL DISTANCE MAP. A map shall be provided that shows boring and well locations, marked delineations for the proposed limits of waste, and the 150-foot and 300-foot setbacks from the marked delineation of waste limits.

SECTION 148. NR 512.12 (2) is amended to read:

NR 512.12 (2) MUNICIPAL WASTES. Actual field leachate data from existing landfills of similar size, design and waste type or an estimate of the anticipated leachate strength and quality available from department files shall be included for all landfills for the disposal of municipal solid waste. For a proposed expansion of an existing municipal solid waste landfill, field leachate data from the existing landfill shall be included.

SECTION 149. NR 512.13 (1) (intro.) and (2) are amended to read:

NR 512.13 (1) LOCATIONAL CRITERIA AND PERFORMANCE STANDARDS. A demonstration that the proposed landfill will meet the locational criteria and performance standards under s. NR 504.04, including documentation of abandoned water supply wells located within 1,200 feet of the proposed limits of waste. The documentation shall include a copy of the well abandonment report, if available, or, if a well abandonment report cannot be found, other evidence that demonstrates that it is likely the well no longer exists. If the applicant requests any exemptions to the locational criteria and performance standards listed under s. NR 504.04, justification for the request shall be provided in the narrative section of the feasibility report. For a new CCR landfill or an expansion of a CCR landfill, all of the following also apply:

(2) GEOTECHNICAL INFORMATION. An analysis of the geologic, hydrogeologic, topographic and hydrologic features of the facility that may be favorable or unfavorable for landfill development. For a proposed vertical-only expansion, the analysis may be limited to topographic and hydrologic features unless otherwise directed by the department in writing.

SECTION 150. NR 512.13 (2m) is created to read:

NR 512.13 (2m) ASSESSMENT OF GROUNDWATER STANDARD EXCEEDANCES. An assessment of whether there is an attainment or exceedance of a preventive action limit or enforcement standard adopted under s. NR 140.10 or 140.12 in baseline or detection groundwater monitoring data, the cause and significance of the attainment or exceedance, and a request for an exemption under s. NR 140.28 and in accordance with s. NR 507.29 for all confirmed attainments or exceedances.

SECTION 151. NR 512.13 (4) (intro.) is renumbered (4) and amended to read:

NR 512.13 (4) EXISTING FACILITY PERFORMANCE. For a proposed ~~contiguous, horizontal, or vertical~~ expansion of an existing landfill, the compliance status and performance of the existing landfill and each additional landfill on the property and adjacent properties owned or operated by the applicant shall be evaluated.

SECTION 152. NR 512.13 (4) (a) and (b) are repealed.

SECTION 153. NR 512.13 (5) is created to read:

NR 512.13 (5) WETLANDS AND SURFACE WATERS. This section does not apply to storm water management structures such as basins and ditches permitted under ch. NR 216, unless otherwise directed by the department in writing. The feasibility report shall include all of the following documentation:

(a) A copy of the assured wetland delineation report or a confirmed wetland delineation report for any wetland potentially impacted by the construction or operation of the proposed facility and one of the following:

1. The wetland permit application under s. 281.36, Stats., and sections 401 or 404 of the federal Clean Water Act (33 U.S.C. 1344) for any proposed activities for which a permit is required.

2. A department and U.S. Army Corps of Engineers written determination that a permit is not required for each proposed activity related to each identified wetland.

(b) A copy of the department navigability and ordinary high water mark determination for any areas identified as a surface water or potential surface water and a copy of the surface water permit application under chs. 30 or 281, Stats. for any proposed activities related to a surface water for which a permit is required.

(c) Copies of all navigable waters and wetland permits, under chs. 30 or 281, Stats., and section 404 of the federal Clean Water Act (33 U.S.C. 1344) that have been obtained.

(d) Copies of any water quality certification under chs. NR 103 and 299 that have been obtained.

SECTION 154. NR 512.14 (intro.) is amended to read:

NR 512.14 Proposed preliminary design. The feasibility report shall contain a proposed preliminary design based on conclusions outlined in the design constraints section of the feasibility report and in accordance with ch. NR 504. Applicants proposing an alternative design to the requirements contained in ss. NR 504.05, 504.06, 504.07, 504.08, and 504.09 shall include an analysis that predicts

whether the proposed landfill will meet or exceed the performance standards of s. NR 504.04 (4) (d) regarding groundwater quality.

SECTION 155. NR 512.14 (1) (g) to (h) and (2) (d) are created to read:

NR 512.14 (1) (g) Any proposed alternative liner design and alternative final cover design.

(h) For contiguous expansions that include a vertical or horizontal overlay, pipe strength calculations for the leachate collection pipes within the vertical or horizontal overlay area.

(2) (d) If proposed, a plan sheet showing maximum interim waste grades.

SECTION 156. NR 512.16 (2) (b) is amended to read:

NR 512.16 (2) (b) The changes in aquatic resources including the potential impacts to streams, wetlands, ponds, lakes and flowages. This discussion shall include the discharge rates and volumes, in relevant quantities for groundwater control structures, leachate collection systems, and storm water control structures under existing conditions as well as that anticipated during active operations and following closure. Information or any reports on how the proposed landfill and soil borrow sources designated to be used in the construction, operation, or closure of the first phase of the proposed landfill comply with ~~s.~~ ss. 30.19~~,~~ and 281.36, Stats., and ch. NR 103 shall also be included.

SECTION 157. NR 512.16 (3) (Note) is created to read:

NR 512.16 (3) Note: In accordance with s. 32.035, Stats., an agricultural impact statement (AIS) is required when the project initiator is vested with powers of eminent domain, and the project will take more than 5 acres from any one farm, regardless of land ownership. An AIS may also be required on a project located entirely within the boundaries of a city, village, or town or involving any interest in 5 or fewer acres of any farm operation if the condemnation would have a significant effect on any farm operation as a whole.

SECTION 158. NR 512.16 (4) (f) and (5) (Note) are amended to read:

NR 512.16 (4) (f) Probable adverse impacts in and around the landfill that cannot be avoided including groundwater and surface water impacts, modifications of topography and any soil borrow source limitations on development around the landfill, any loss of agricultural or forest land, displacement of wildlife, and adverse aesthetic impacts for people ~~in and around the landfill~~.

(5) Note: Information provided in previous sections of the initial site report~~, any pre-feasibility report~~ or feasibility report may be referenced to satisfy this section.

SECTION 159. NR 514.04 (1) and (4) are amended to read:

NR 514.04 (1) GENERAL. No person may establish or construct a landfill or expand a landfill until a plan of operation has been submitted in accordance with ~~s.~~ ss. NR 500.05 and 500.058 and this chapter and has been approved in writing by the department. No person may establish, construct, or close an approved landfill except in accordance with this chapter, s. NR 506.08, and ~~with~~ the approved plan of operation. No person may submit a plan of operation for a new or expanded landfill prior to the submittal of a feasibility report by that person.

(4) COMPLETENESS. Within 30 days after a plan of operation is submitted or, if the plan of operation is submitted with the feasibility report, within 30 days after the department issues notice that the feasibility report is complete, the department shall provide written notification to the applicant and any other person who has filed a written request whether or not the plan of operation is complete. If the submittal is deemed incomplete, the department ~~will~~ shall specify the information ~~which~~ that shall be submitted before the plan may be deemed complete. The department ~~will~~ shall determine if the plan of operation is complete by determining whether or not the minimum requirements of this chapter and the conditions of any feasibility approval have been met~~. The department may require the applicant to submit additional information after determining that the plan of operation is complete if the department establishes that the plan of operation is insufficient without the additional information.~~ and whether any additional information is necessary to make a decision regarding approval of the plan of operation. Notwithstanding a determination of completeness, the department may require the applicant to submit additional information during review of the plan of operation if the department determines the plan is insufficient without the additional information.

SECTION 160. NR 514.04 (6m) is created to read:

NR 514.04 (6m) INITIAL SITE CONSTRUCTION APPROVAL. After the department has determined the plan of operation is complete, the department may issue an initial site construction approval that allows initiation of construction prior to issuing the plan of operation approval. The initial site construction request shall be submitted independently of the plan of operation and clearly list the construction items to be performed, which may include clearing and grubbing, excavation to sub-base, construction of berms and storm water features, or other items approved by the department in writing.

SECTION 161. NR 514.045 (1) (e) Note is created to read:

NR 514.045 (1) (e) **Note:** Critical Habitat areas are designated by the U.S. Fish and Wildlife Service. See USFWS Threatened & Endangered Species Active Critical Habitat Report (https://ecos.fws.gov/ecp/report/critical-habitat and https://ipac.ecosphere.fws.gov/).

SECTION 162. NR 514.05 (3) and (7) are amended to read:

NR 514.05 (3) SUB-BASE GRADES AND BASE GRADES. Plan sheets shall be included ~~which~~ that depict the sub-base grades, all sub-base appurtenances such as lysimeters or drain pipes, the underdrain system, and the base grades.

(7) WASTE FINAL GRADES AND FINAL TOPOGRAPHY. A final waste grades plan sheet shall be included to indicate waste final grades, including daily and intermediate cover. A final topography plan sheet shall be included to indicate the appearance of the entire facility following closure including storm water drainage features, ~~and the location of gas extraction wells~~ the location of the gas extraction system, including the gas wells with radius of influence and gas header pipes, and all other penetrations of the final cover.

SECTION 163. NR 514.05 (10) (a) 5m. is created to read:

NR 514.05 (10) (a) 5m. Underdrain systems.

SECTION 164. NR 514.05 (11) is amended to read:

NR 514.05 (11) DETAILS. Drawings showing details and typical sections shall be included for storm water control structures; access roads; fencing; final cover and base liner systems; leachate and gas control systems such as pipe bedding, manholes, transfer lines, force mains and storage tanks; leachate transfer lines ~~which~~ that extend through the liner; groundwater and unsaturated zone monitoring devices; and buildings. This plan sheet shall include all other construction details such as leachate and refuse containment berms between subsequent phases of development, tie-in between proposed construction phases of base liner and final cover, and tie-in between existing and proposed base liner and final cover for expansions.

SECTION 165. NR 514.06 (3), (4), and (8) are amended to read:

NR 514.06 (3) DESIGN RATIONALE. The report shall include a discussion of the considerations and rationale behind design of the discretionary aspects of major engineering features ~~which~~ that are not explicitly required by state or federal regulations or the conditions of the department's feasibility approval for the landfill. This discussion shall include base grade configuration and relationship to subsurface conditions, underdrain system design, liner design, phases of landfill development and closure, traffic routing, storm water management, erosion, and sediment control measures, gas extraction and treatment systems, final cover systems, and monitoring systems. Specific attention shall be given to sidewall penetrations, sideslope riser and sump area volumes, design and construction, ~~and~~ piping located outside

of the limits of filling, alternative liner design, and alternative final cover design. In addressing each of the above design items, the report shall indicate how the anticipated waste types and characteristics influenced the chosen design.

(4) INITIAL CONSTRUCTION. The report shall discuss initial preparations and construction methods relating to clearing and grubbing, topsoil stripping and other excavations; soil storage and visual screening development; storm water control features; underdrain, base liner and granular drainage layers; leachate collection and gas venting systems; access roads and entrance area screening and fencing; environmental monitoring device installation and other special design features. This discussion shall propose a schedule of field measurements, photographs to be taken, and sampling and testing procedures to be utilized to verify that the infield conditions encountered were the same as those defined in the feasibility report.

(8) OPERATIONS. The report shall describe the daily operations including a discussion of the timetable for the construction of each phase of liner or final cover; waste types accepted or excluded; typical waste handling techniques and methods for handling unusual waste types; hours of operation; traffic routing; storm water management; sediment and erosion control; windy, wet and cold weather disposal operations; fire protection equipment; anticipated staffing requirements; methods for ~~vector, dust and odor control;~~ controlling vectors; a dust control plan; an odor control plan; daily cleanup; leachate removal during hours of operation as well as nights, weekends, and holidays; direction of filling; salvaging; record keeping; and parking for visitors, users and employees. The report shall describe any limitations or operational practices necessary due to the presence of other open or closed landfills, demolition landfills, processing facilities, storage facilities, composting facilities or any other solid waste facilities located on the same property.

SECTION 166. NR 514.06 (10m) is created to read:

NR 514.06 (10m) PHASING TABLE. The report shall include a table that indicates the projected construction events for each phase of liner or final cover, construction year, liner to be added in acres, total liner area in acres, final cover to be added in acres, total final cover area in acres and intermediate cover, and open area in acres.

SECTION 167. NR 514.06 (13) and (16) are amended to read:

NR 514.06 (13) SPECIFICATIONS. The report shall include specifications for construction, operation, and closure of the landfill. These specifications shall include detailed instructions to the operator and any contractors for all aspects of construction and operation, including construction of alternative liner and alternative final cover. References to specifications on the plan sheets shall be

described. This description 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.

(16) APPENDIX. An appendix shall be included ~~which~~ that lists 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, ~~documents related to placing a notification on the deed of properties with wells within the 1200-foot setback~~ the stormwater pollution prevention plan, and other appropriate information.

SECTION 168. NR 514.07 (1) (i) is renumbered NR 514.07 (1) (i) 1. to 2. and amended to read:

NR 514.07 (1) (i) 1. A construction quality control plan that will be followed by all contractors preparing the surface of the sub-base, compacted clay liner, or soil barrier layer~~,~~; constructing the geomembrane liner; ~~and~~ or placing drainage blanket. The construction quality control plan shall include means for determining and documenting all of the following: ~~receipt~~

a. Receipt of the proper geomembrane, GCL and geocomposite drain material~~; acceptable~~ or other geosynthetics proposed for use.

b. Acceptable subgrade and weather conditions for work to occur~~; seamer~~.

c. Seamer qualifications and procedures for trial seams~~; acceptability~~.

d. Acceptability of test welds and machine settings~~; acceptable~~

e. Acceptable seaming practices~~; achieved~~.

f. Achieved seam quality and procedures for dealing with failing tests~~; patching; and sealing~~.

g. Patching or sealing of geomembrane penetrations.

2. The construction quality control plan shall also describe how progress in construction, as well as any variations from the approved plans, will be recorded and reported.

SECTION 169. NR 514.07 (1) (j) and (3) (intro.) are amended to read:

NR 514.07 (1) (j) 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, and other geosynthetic installation activities by qualified engineers or technicians. The construction quality

assurance plan shall include use of nondestructive and destructive testing of seams and samples and shall propose a schedule of tests and associated frequencies in accordance with those specified in ch. NR 516. 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. The construction quality assurance plan shall include acceptable welding practices for extrusion and fusion welding techniques as well as outlining any visual screening techniques that will be used in the field to determine the quality of a fusion or extraction weld.

(3) CLOSURE OF LANDFILLS WITH COMPOSITE LINERS AND COMPOSITE CAPS. The plan of operation for any landfill ~~which~~ that accepts municipal solid wastes may propose to delay final cover placement for ~~one or more~~ up to two years after attaining either final waste grades or maximum interim waste grades, if approved by the department under s. NR 514.07 (11), in each phase of closure provided the following requirements are followed:

SECTION 170. NR 514.07 (6m) (intro.) is amended to read:

(6m) CONTIGUOUS LANDFILL EXPANSIONS. The plan of operation for any proposed landfill ~~which~~ that is either a vertical or horizontal overlay to an existing approved facility shall include all of the following:

(am) A summary of all applicable conditions of department issued, chs. NR 500 to 538, approvals or orders that are active and subject to compliance at the time of the plan of operation report submittal. The summary shall be submitted on forms provided by the department and at a minimum shall contain all of the following:

SECTION 171. NR 514.07 (6m) (a) and (b) are renumbered NR 514.07 (6m) (am) 1. and 2.

SECTION 172. NR 514.07 (6m) (c) is renumbered NR 514.07 (6m) (am) 3. and amended to read:

NR 514.07 (6m) (am) 3. The status of each condition listed in ~~par. (b)~~ subd. 2. shall be identified as:

SECTION 173. NR 514.07 (6m) (c) 1. to 3. are renumbered NR 514.07 (6m) (am) 3. a. to c.

SECTION 174. NR 514.07 (6m) (d) and (e) are renumbered NR 514.07 (6m) (am) 4. and 5. and amended to read:

NR 514.07 (6m) (am) 4. Identification of specific applicable codes, plan of operation report

sections or further justification to support the applicant's recommended status category ~~in par. (c)~~ under subd. 3.

NR 514.07 (6m) (am) 5. The department shall provide a summary of the facility's active approval conditions or order conditions as an informational attachment to the plan of operation determination. This summary shall consider the applicant's recommended status ~~in par. (c)~~ under subd. 3. and any applicable department issued conditions in the plan of operation determination. A department summary under this paragraph does not relieve the applicant of the compliance requirement of any condition prior to the issuance of the summary.

SECTION 175. NR 514.07 (6m) (bm) to (hm) are created to read:

NR 514.07 (6m) (bm) An evaluation of the existing leachate collection system that includes all of the following at a minimum:

1. Pipe strength calculations for the leachate collection pipes within the vertical or horizontal overlay area.

2. An evaluation of performance of the existing facility's leachate collection system.

3. An evaluation of the existing facility's leachate collection tank storage capacity, including the proposed location and size of any additional tanks needed.

4. An evaluation of the existing facility's leachate collection tanks to determine the integrity of the tanks and the cathodic protection on the tanks, including proposed modifications to the tanks or cathodic protection of the tanks.

5. If the facility has a direct connection to a sanitary sewer, an evaluation of the existing facility's piping to the sanitary sewer and an evaluation of the wastewater treatment plant's ability to manage and treat the additional leachate from the expansion.

(cm) An evaluation of the existing gas extraction system to determine if additional landfill gas generated by the proposed landfill will require changes to the existing gas transfer piping, condensate removal system, blower, flare, or gas utilization system, including any proposed modifications to the gas extraction system.

(dm) An evaluation of the existing litter control plan and proposed modifications to the plan.

(em) An evaluation of the existing odor control plan and proposed modifications to the plan.

(fm) An evaluation of the existing leachate recirculation plan and proposed modifications to the plan.

(gm) An evaluation of the existing organic stability plan and proposed modifications to the plan.

(hm) The revised storm water pollution prevention plan.

SECTION 176. NR 514.07 (10) (a) 1. (intro.) is amended to read:

NR 514.07 (10) (a) 1. The plan shall identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility and procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at the facility. The owner or operator shall select and include in the CCR fugitive dust control plan the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Control measures may include any of the following:

SECTION 177. NR 514.07 (11), (12), (13), and (14) are created to read:

NR 514.07 (11) MAXIMUM INTERIM WASTE GRADES. The plan of operation for any municipal solid waste landfill that proposes placement of interim waste above final waste grades described in s. NR 514.05 (7) shall include all of the following:

(a) The maximum interim waste grades at which waste may be placed. Maximum interim waste grades shall be one of the following:

1. No more than 5 percent higher than the proposed final waste grades when compared to the depth of waste at that location.

2. No more than 10 percent higher than the proposed final waste grades when compared to the depth of waste at that location if closure cost estimates under s. NR 520.07 for financial responsibility are provided for removal and disposal of the waste that is higher than 5 percent of the approved final waste grades.

(b) A maximum intermediate waste grades plan sheet that indicates the maximum interim waste grades.

(c) A corresponding table on a maximum 100-foot grid pattern that includes coordinates and elevations for the top of the leachate collection layer, the proposed final waste grades, the proposed maximum interim waste grade elevations, and waste thickness.

(d) A provision for removal of waste from areas that do not settle to the approved final waste grades by the time final cover construction is scheduled to begin for that closure phase.

(e) Pipe strength and slope stability calculations that account for the maximum interim waste grades.

(12) ABANDONMENT OF WELLS. The plan of operation for a proposed landfill property that includes private water supply wells or groundwater monitoring wells shall include all of the following:

(a) Methods for abandonment of water supply wells located within the proposed limits of waste in

accordance with ss. NR 812.26 and 507.08 (2) and documentation in accordance with s. NR 507.14 (4).

(b) Phased abandonment of all groundwater monitoring wells within the proposed limits of waste. Abandonment shall include the removal of well casings and screens in accordance with the requirements of s. NR 141.25 (2) (c) and documentation in accordance with s. NR 507.14 (4).

(13) WETLANDS AND SURFACE WATERS WITHIN PROPOSED LIMITS OF WASTE OR SUPPORT STRUCTURES. This section does not apply to storm water management structures such as basins and ditches permitted under ch. NR 216, unless otherwise directed by the department in writing. The plan of operation for any proposed landfill or expansion of an existing landfill that has wetlands or surface waters within the proposed limits of waste or in other areas proposed to be directly filled or excavated shall include all of the following:

(a) A copy of any navigable waters permit under chs. 30 or 281, Stats., and section 404 of the federal Clean Water Act (33 U.S.C. 1344) and any water quality certification under chs. NR 103 and 299 that have been obtained; or a department and U.S. Army Corps of Engineers written determination that a permit is not required for each proposed activity related to each identified surface water and an explanation of how the plan of operation will comply with the conditions of all applicable state and U.S. Army Corps of Engineers surface water permits.

(b) A copy of any wetland permit under ch. 281, Stats. and section 404 of the federal Clean Water Act (33 U.S.C. 1344) and any water quality certification under chs. NR 103 and 299 that have been obtained; or a department and U.S. Army Corps of Engineers written determination that a permit is not required for each proposed activity related to each identified wetland and an explanation of how the plan of operation will comply with the conditions of all applicable state and U.S. Army Corps of Engineers wetland permits.

(c) The proposed redesign if a landfill has a condition of feasibility that requires redesign of the landfill limits of waste and landfill-related features to avoid unpermitted wetland or surface water discharges. The proposed redesign shall include a minimum 50-foot undisturbed separation from the delineated wetlands to all perimeter support berms, access roads, drainage ditch boundaries, soil stockpiles, and all other landfill features, unless otherwise approved by the department. The limits of waste shall not be extended vertically or horizontally, and the design capacity shall not be increased beyond that approved in the ch. NR 512 feasibility determination.

(14) IMPACTS TO WETLAND FUNCTIONAL VALUES. The plan of operation for any proposed landfill or expansion of an existing landfill shall include a plan for implementing protective measures and actions to avoid significant adverse impacts during construction and operation activities to functional values of nearby wetlands described in the feasibility report or environmental analysis of ch. NR 512.

SECTION 178. NR 514.09 (1) (b) 10. and (2m) are created to read:

NR 514.09 (1) (b) 10. Revisions to cost estimates for closure and long-term care.

(2m) INCOMPLETE PROPOSAL. If a proposal to modify an approved plan of operation is incomplete or does not provide all of the information needed to justify the proposed modification, the department shall object to the modification within 30 days after receipt.

SECTION 179. NR 514.10 (2) (c) is amended to read:

NR 514.10 (2) (c) Renewals of testing periods shall be limited to a maximum of 3 years each. The maximum number of renewals shall be limited to 6. Renewals shall be submitted to the department at least 90 days prior to the expiration of the plan being renewed. Failure to submit renewal requests in accordance with this timeframe may result in termination of the research, development, and demonstration plan until the renewal is approved.

SECTION 180. NR 516.04 (1) is amended to read:

(1) REPORT PREPARATION. ~~A~~ The landfill owner or operator shall prepare and submit a report documenting all aspects of construction ~~shall be prepared~~ for the initial construction of the landfill; the construction of all subsequent phases or portions thereof; the construction of any storm water, groundwater, leachate or gas control structures; the implementation of remedial actions; and the closure of each major disposal area. Approval of a report ~~which~~ that documents the construction of any portion of the base of a landfill shall be obtained from the department prior to initiating disposal operations in the newly established area, unless the department does not issue a determination within 60 days after receiving a complete submittal, along with the appropriate review and construction inspection fees specified in ch. NR 520.

SECTION 181. NR 516.04 (3) (d) (intro.) is amended to read:

NR 516.04 (3) (d) Separate signed statements by the registered 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 all applicable solid waste administrative code requirements. All observed deviations and field modifications shall be explicitly noted and discussed including 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.

SECTION 182. NR 516.04 (3) (d) 4. is created to read:

NR 516.04 (3) (d) 4. Elements of the construction relating to preparation of sub-base for an alternative liner design or in areas of unsuitable soil removal. Those elements shall include all of following:

a. The quality of prepared sub-base material used and placement methods.

b. Connections with previously placed prepared sub-base layers.

c. Placement of compacted clay materials over the prepared sub-base.

SECTION 183. NR 516.04 (5) (intro.) and (b) are amended to read:

NR 516.04 (5) PRECONSTRUCTION REPORTS. A preconstruction report shall be prepared for construction of each phase of a composite liner as well as each phase of a composite capping layer. The department may also require a preconstruction report for each phase of construction ~~which~~ that utilizes other geosynthetics, or when other geosynthetic materials are used in significant structural features of the landfill. The preconstruction report shall be submitted to the department no later than 15 days prior to each of the preconstruction meetings for the construction of the geomembrane component of a composite liner or a composite capping layer. ~~Unless otherwise specified, 3 copies shall be provided to the appropriate department field office.~~ The preconstruction report shall include, at a minimum, all of the following:

(b) 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 a table summarizing the results of the manufacturer's quality control tests on the geomembranes and GCLs supplied to the project.

(bc) Identification of the fabricator of geotextiles and other geosynthetics used in site construction~~,~~ and 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. Description of any~~

(bm) Manufacturer and 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.

(br) 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.

(bu) 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.

SECTION 184. NR 516.04 (5) (bg) is created to read:

NR 516.04 (5) (bg) Manufacturer specifications for geomembrane and other geosynthetics to be used, including all of the following:

1. Methods of storage and material handling procedures.

2. Methods used to bond the materials together and to connect panels together.

3. A timeline for exposure to UV radiation after deployment.

SECTION 185. NR 516.04 (5) (c) to (e) are amended to read:

(c) The results of a shear test conducted~~, in accordance with ASTM method D5321,~~ 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~~ that 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 event ~~then,~~ the test need not be conducted again. The department may waive testing of materials ~~which~~ that are proposed exclusively for use on liners or final cover systems with slopes of less than 10~~%~~ percent.

(d) A copy of the approved quality control plan ~~which~~ that provides all information specified in s. NR 514.07 (1) (i), 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 landfill's approved plan of operation shall be highlighted and explained.

(e) A copy of the approved quality assurance plan ~~which~~ that provides all information specified in s. NR 514.07 (1) (j), as well as identification of the registered professional engineer and qualified

technician who will be providing quality assurance and a summary of their qualifications and related work experience.

SECTION 186. NR 516.04 (7) is created to read:

NR 516.04 (7) CONSTRUCTION DRAWINGS. Prior to construction of a new landfill area, closure of a landfill area, or construction of a gas extraction system, an electronic copy of the construction drawings shall be provided to the department.

SECTION 187. NR 516.05 (intro.) and (1) (a), (c), and (e) are amended to read:

NR 516.05 Construction of landfill areas. In addition to the general information specified in s. NR 516.04 (3) (d), reports documenting the construction of all new landfill areas shall be submitted to the department within 90 days of construction completion and contain all of the following minimum information:

(1) (a) A plan view documenting the constructed grades for the underdrain, sub-base, prepared 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.

(c) A plan sheet documenting the constructed elevations for the liner system. This plan sheet shall contain spot elevations of the base, sumps, 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.

(e) 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, prepared sub-base, and base grade contours, underdrain contours and piping, 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.

SECTION 188. NR 516.05 (1) (j) is created to read:

NR 516.05 (1) (j) The results of the manufacturer's quality control tests on the geomembrane, GCLs, and any other geosynthetic material supplied to the project.

SECTION 189. NR 516.05 (2) (a), (e) (intro.) and 1., and (f) are amended to read:

NR 516.05 (2) (a) An analysis and discussion of all soil and geomembrane testing work performed~~.~~ including a discussion of soil and geomembrane test results that did not meet required specifications, how the extent of failed test was tracked to passing results, and how the soil and geomembrane materials were replaced, reworked, or repaired to meet required specifications. 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 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. Also included shall be the make, model, weight and foot length of each piece of equipment used to compact clay.

(e) Daily summary reports prepared by the registered professional engineer or qualified technician performing continuous quality assurance for each day that clay is placed and 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:

1. Identification and location of clay or geomembrane panels placed, with modifications of the fabrication plan noted.

(f) A series of properly labeled ~~35 millimeter~~ color ~~prints or prints from digital~~ photographs documenting all major aspects of facility construction. This shall include close–up photographs of the construction process including prepared sub-base, 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~~,~~; drainage blanket placement and the installation of all manholes, sumps, sideslope risers, lift stations, and storage tanks. Panoramic views shall be included showing the completed liner before and after granular blanket placement.

SECTION 190. NR 516.05 (2) (g) is created to read:

NR 516.05 (2) (g) Copies of completed well abandonment forms for water supply wells or

groundwater monitoring wells. These copies shall be included in the respective liner construction documentation report for the phases where the monitoring wells were located in accordance with s. NR 507.14 (4).

SECTION 191. NR 516.06 (intro.) is amended to read:

NR 516.06 Closure of landfill areas. In addition to the requirements of s. NR 516.04 (3), all construction documentation reports for the closure of landfill areas shall be submitted to the department within 90 days of the completion of construction and contain all of the following minimum information:

SECTION 192. NR 516.06 (1) (j) is created to read:

NR 516.06 (1) (j) The results of the manufacturer's quality control tests on the geomembrane, GCLs, and any other geosynthetic material supplied to the project.

SECTION 193. NR 516.06 (2) (a), (d), and (g) are amended to read:

NR 516.06 (2) (a) An analysis and discussion of all soil, geomembrane, and other geosynthetic testing work performed~~.~~, including a discussion of soil and geomembrane test results that did not meet required specifications, how the extent of failed test results were tracked back to passing results, and how the soil and geomembrane materials were replaced, reworked, or repaired to meet required specifications. 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.

(d) A table showing gas extraction well construction information including~~:~~ location, surface elevation, depth of the borehole, top of casing elevation, elevation and length of the solid and perforated piping, elevation and length of the gravel backfill, bentonite seal, and other backfill materials. The table shall also include the distance between the bottom of the vertical gas extraction wells and the top of the leachate collection system and include an explanation for any well that does not meet the requirements of s. NR 504.08 (2) (b).

(g) A series of properly labeled ~~35 millimeter~~ color ~~prints which~~ photographs that document all major aspects of facility closure. This shall include panoramic views of the closed area as well as close-up photos of the construction process and completed engineering structures such as gas extraction wells

or vents, blower and flare stations, cleanout ports, manholes, gas condensate tanks, and other pertinent structures.

SECTION 194. NR 516.07 (1g) is created to read:

NR 516.07 (1g) PREPARED SUB-BASE CONSTRUCTION. For all prepared sub-base construction, all of the following tests:

(a) Dry density and as-placed moisture content shall be determined on an approximate 100-foot grid pattern for each one-foot thickness of prepared sub-base soils placed. If more than one foot is used, the grid pattern shall be offset on each subsequent layer of tests. A minimum of 2 density and moisture content tests for each one-foot thickness of prepared sub-base soils placed shall be performed to fully define the degree of soil compaction obtained in confined areas where equipment movement is hindered or hand compaction is necessary.

(b) One moisture-density curve shall be developed for every 1,500 cubic yards or less of prepared sub-base soils placed and for each major soil type utilized. At least 5 points shall be established on each curve. If apparent changes in soil quality are observed during clay placement, a one-point Proctor analysis shall be utilized to verify the applicability of previously analyzed moisture-density curves.

(c) A minimum of one undisturbed sample for each acre for every one-foot thickness of prepared sub-base soils placed shall be analyzed for laboratory hydraulic conductivity using effective stresses less than or equal to 5 psi and hydraulic gradients less than or equal to 30.

(d) If the native in-situ soils meet the requirements of s. NR 504.065 (2) (a) 1. and 2., results of borings, backhoe pits, or other means of exposing subsoils performed on a 100-foot grid to a minimum depth of 5 feet below the sub-base grades of the liner shall be assessed to determine if sand seams, peat, or other unsuitable soils are present. If sand seams, peat, or other unsuitable soils are detected within this 5-foot depth during construction, describe how they were removed and replaced with compacted soil.

SECTION 195. NR 516.07 (2) (a) (intro.) and 4., and (2) (c) 2., 4., and 5., and (2m) (a) 1. to 3. are amended to read:

NR 516.07 (2) (a) Conformance sampling and testing shall be conducted on geomembrane materials delivered on site and used in construction. If geomembrane materials are used from a previous construction project, the conformance testing results shall be provided in accordance with subds. 1. to 4. and a narrative shall be provided discussing the storage of the geomembrane materials between the previous and current construction projects. Sampling shall be conducted by the quality assurance engineer or qualified technician. and shall include all of the following:

4. Geomembrane environmental stress cracking resistance documentation shall be provided ~~which~~ that shows that the manufacturer performed a minimum of one test for each batch of resin used to manufacture rolls delivered on site. This testing is not required if the selected resin does not exhibit a well-defined reproducible yield point.

(c) 2. Destructive seam test samples shall be taken at a rate of one sample per 500 feet of fusion seam accomplished, unless another frequency or spacing is approved by the department. For landfills conducting leak location testing in accordance with par. (d), destructive seam test samples shall be taken at a rate of one sample per 1,000 feet of fusion seam accomplished, unless another frequency or spacing is approved by the department. A portion of the sample shall be tested both in the field and in the laboratory for shear and peel with a minimum of 5 samples for each test type. The quality assurance engineer or qualified technician shall choose the location of the destructive seam samples. The total seam length of fusion seaming accomplished shall be provided.

4. Field shear and peel tests of geomembrane seams and geomembranes shall be performed using standardized specimen sizes in tensile testing machines. The tensile testing machine shall be equipped with electrically controlled and smoothly moving jaw separation apparatus, shall be capable of adjustments and defined settings for jaw separation rate, and shall display jaw separation rates and tensile loadings exerted on the geomembrane samples. Tensile testing machines shall be accompanied by documentation for calibration conducted within 3 months of the start of geomembrane installation for the specific load cells used. Geomembrane samples shall be prepared for field analyses by use of templates and cutting tools that prepare uniformly sized samples.

5. Field and laboratory shear and peel testing of geomembrane seam samples shall include a minimum of 5 peel tests and 5 shear tests. Fusion welds shall be tested on both sides of the air channel track. ~~Acceptable test results shall be defined by a minimum of 4 of the 5~~ Tests shall be acceptable when all samples for peel and shear testing ~~meeting or exceeding~~ meet or exceed minimum tensile strength and elongation requirements and ~~5 of the 5 samples exhibiting~~ all samples exhibit acceptable weld separation behavior.

(2m) (a) 1. Clay mass per unit area shall be tested at a rate of one test per 40,000 ft^2 of GCL installed; results shall be reported at 0~~%~~ percent moisture content.

2. Grab and peel tensile strength~~, expressed as machine direction and cross direction,~~ shall be tested ~~using ASTM D6768-02~~ at a rate of one test per 100,000 ft^2 of GCL installed.

3. Index flux shall be tested ~~using ASTM D6496-99~~ at a rate of one test per 100,000 ft^2 of GCL installed.

SECTION 196. NR 516.07 (6) is created to read:

NR 516.07 (6) POST-CONSTRUCTION REPAIRS. Repairs made to liner or final cover systems after initial construction has been approved shall be performed and documented in accordance with this chapter and the approved construction quality control and construction quality assurance plans. Documentation of the repairs and all related material testing shall be submitted within 30 days of the completion of repairs, unless approved by the department in writing.

SECTION 197. NR 516.09 is repealed.

SECTION 198. NR 518.07 (2) (f) is amended to read:

NR 518.07 (2) (f) The department may require monitoring as part of the landspreading plan approval including soil concentrations, surface water, groundwater, plant tissue or other parameters as appropriate. If borings or wells are required, they shall be installed in accordance with ch. NR ~~508~~ 507.

SECTION 199. NR 520.04 (1) (a), (b), and (d) 3. to 5. are amended to read:

NR 520.04 Licenses and fees. (1) (a) Application for an initial license for a new solid waste facility may be submitted at any time during the license period. Initial licenses issued during the license period shall expire at the end of that license period. The applicant for initial licensing of a facility, at any time during the license period, shall submit the appropriate annual fees amount as shown in Table 2 or Table 3, whichever is applicable.

(b) Each year, the department will ~~mail~~ send renewal application forms to existing license holders. Applicants failing to submit the relicensing application to the department within the specified time shall pay a late processing fee equal to 50~~%~~ percent of the renewal fee or $150.00, whichever is less, in addition to the relicensing fee.

(d) 3. The tonnage rate shall be ~~9.0 cents/ton through March 31, 2004, 12.0 cents/ton effective April 1, 2004, 14 cents/ton effective July 1, 2004, and~~ 15.0 cents/ton effective July 1, 2005, ~~and beyond~~ 25.0 cents/ton effective January 1, 2026, 27.0 cents/ton effective January 1, 2031, and 30.0 cents/ton effective January 1, 2036.

4. **Note:** The forms will be ~~mailed~~ sent to the landfill owners or operators by the Department on a quarterly basis.

5. The department shall hold a public meeting annually ~~in September~~ to review the status of and projections for the waste management program revenue account. If, for 3 consecutive fiscal years, the end of year account balance is greater than ~~20%~~ 25 percent of the expenditure level of the program revenue account authorized in s. 20.370 (4) (dg), Stats., the department shall submit to the natural

resources board proposed rule revisions with appropriate justification for the modification of the surcharge payable under this paragraph to more closely align revenues with expenditures in accordance with s. 289.61 (3), Stats. ~~The proposed rule revisions shall be submitted within 180 days after the date of the public meeting.~~

SECTION 200. NR 520.04 (1) (d) 6. is created to read:

NR 520.04 (1) (d) 6. The license fee surcharge under subd. 1. does not apply to any of the following waste disposed of at landfills:

a. Waste that was previously disposed of in a licensed landfill and is excavated and disposed of in another licensed landfill.

b. Waste generated as a result of a natural disaster that meets the criteria in ss. 289.63 (6) (b), 289.64 (4) (b), 289.645 (4) (f), or 289.67 (1) (fm), Stats.

c. Waste created as a direct result of a one-time project paid for with state funds.

SECTION 201. NR 520.04 (3), (4) (intro.) and (a) are amended to read:

NR 520.04 (3) LICENSURE DURING THE CLOSURE AND LONG-TERM CARE PERIOD. The owner or operator and any successor in interest shall maintain a license during the closure and long-term care period indicated in s. 289.41 (1m), Stats. The license fees are specified in Table 3. The owner or operator shall maintain an active operating license until all closure activities are complete and the department has issued a long-term care license, if applicable.

(4) PLAN REVIEW AND LICENSE FEES. For the purposes of determining plan review and license fees, all of the following shall apply:

(a) Plan review and license fees shall be charged in accordance with Tables ~~2, 3 and 5~~ 2 and 3.

SECTION 202. NR 520.04 (4) (b) and (c) are repealed.

SECTION 203. NR 520.04 (4) (d) to (i) are created to read:

NR 520.04 (4) (d) The plan review fees specified in Table 2 for all facilities except landfills and surface impoundments cover the department's review from initial submittal through approval or denial of the report or plan. An applicant may withdraw and revise or supplement a report or plan prior to it being deemed complete and resubmit it without paying an additional review fee. The applicant shall pay an additional plan review fee as specified in Table 2 for resubmittal of a plan that has been withdrawn after having been determined to be complete or for review of a report that has twice been declared incomplete.

(e) A plan modification as referred to in Table 2 is a submittal that proposes to modify a plan of operation or closure plan previously approved by the department.

(f) The department shall waive the plan review fees and license fees in Table 2 for a processing facility, including a composting facility, an electronics processing facility, or an incinerator that has a primary purpose of converting solid waste into usable materials, products, or energy. The waiver does not include the initial site and construction inspection fees or the construction documentation review fee.

(g) The plan review fees specified in Table 3 for landfills and surface impoundments cover the department's review from initial submittal through approval or denial of the report or plan. An applicant may withdraw and revise or supplement a report or plan prior to it being deemed complete and resubmit it without paying an additional review fee. The applicant shall pay an additional plan review fee as specified in Table 3 for resubmittal of a plan that has been withdrawn after having been determined to be complete or for review of a report that has twice been declared incomplete.

(h) A plan modification fee in Table 3 applies to a submittal that proposes to modify any of the following:

1. A plan of operation previously approved by the department.

2. A closure plan previously approved by the department.

3. The design management zone.

4. Calculation of indicator preventive action limits or alternative concentration limits as defined in ch. NR 140.

5. Exemptions to any groundwater standard under ch. NR 140 in a previously approved plan of operation.

(i) The supplementary review fee in Table 3 applies to any of the following submittals:

1. An alternative geotechnical investigation plan under s. NR 512.085.

2. An initial site construction approval request under s. NR 514.04 (6m).

3. A site investigation or remedial action plan for environmental remediation.

SECTION 204. NR 520.05 (1) and Table 1 are amended to read:

NR 520.05 (1) OWNER'S RESPONSIBILITY. The owner of any landfill is responsible for its closure, for any remedial actions required by the department, and for its perpetual long-term care. Owners of landfills or other solid waste facilities shall provide proof of financial responsibility as determined by Table 1 and the remainder of this chapter. Those facilities required to provide proof of financial responsibility shall submit the proof ~~as part of~~ prior to obtaining their operating license and annually thereafter for the period of active facility life, or longer ~~where~~ when required, to ensure compliance with

closure, long-term care, or remedial actions.

Table 1

Proof of Owner Financial Responsibility

Facility Type	Closure Proof	Minimum LTC Proof Period	Subject to Remedial Action Proof, if required
1. Approved Land Disposal Facilities			
a. Last Plan of Operation approved before 8/8/89 and permanently ceased accepting waste before 8/15/91.	Yes	20 or 30 years based on original choice of owner	No
b. Last Plan of Operation approved before 8/8/89 and accepted waste on or after 8/15/91.	Yes	40 years	Yes, if a MSW Landfill accepting waste after July 1, 1996.
c. Last Plan of Operation approved on or after 8/8/89.	Yes	40 years	Yes, if a MSW Landfill accepting waste after July 1, 1996.
2. Non-Approved Land Disposal Facilities			
a. Not a MSW Landfill or a MSW landfill which did not accept waste after October 8, 1993.	No	No LTC proof required	No
b. MSW Landfill which accepted waste after October 8, 1993 but permanently	Yes	40 years	No

stopped prior to July 1, 1996			
c. MSW Landfill which accepted waste after July 1, 1996.	Yes	40 years	Yes
3. Demolition Waste Landfills Regulated under Ch. NR 503			
a. Small	If required in Department Plan Approval.	If required in Department Plan Approval.	No
b. Intermediate	Yes	40 years	No
4. Transfer, Storage, Processing, Incinerator, and Combustor Facilities	If required in Department Plan Approval.	If required in Department Plan Approval.	No

MSW = Municipal Solid Waste

LTC = Long-term care

SECTION 205. NR 520.06 (intro.), (3), (4), (6) (c), and (8) are amended to read:

NR 520.06 Methods of providing proof of financial responsibility. Financial assurances for closure, long-term care, and remedial actions ~~where~~ when required, shall be established separately. The owner shall specify, as part of the plan of operation submittal or prior to operation for facilities that do not require a plan of operation, which method of providing proof of financial responsibility will be used for closure and for long-term care. To provide proof of financial responsibility, the applicant shall use only one of the following methods for each account unless more than one method is approved by the department in writing:

(3) ESCROW ACCOUNT. If the owner establishes an escrow account, the amount shall be determined according to s. NR 520.08 (1) (a), (2) (a), or (3) (a), if required, and the account shall be with a bank or financial institution located within the state of Wisconsin which is examined and regulated by the state or a federal agency. The assets in the escrow account shall consist of cash, certificates of deposit, or U.S. government securities. A total of no more than ~~$100,000~~ $250,000, or the standard Federal Deposit Insurance Corporation insurance limit, in cash and certificates of deposit may be placed into escrow accounts or trust accounts established by the owner in the same bank or financial institution for the purposes of providing financial assurance to the department. U.S. government securities shall be

used in these escrow or trust accounts for amounts in excess of ~~$100,000~~ $250,000, or the standard Federal Deposit Insurance Corporation insurance limit. All interest or coupon payments shall accumulate in the account. A duplicate original of the escrow agreement for closure or long-term care, with original signatures shall be submitted to the department as part of the initial operating license application. Escrow account forms shall be supplied by the department. The department shall be a party to the escrow agreement, which shall provide that there shall be no withdrawals from the escrow account except as authorized in writing by the department. The escrow agreement shall further provide that the department shall have the right to withdraw and use part or all of the funds in the escrow account to carry out the closure or 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 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 closure or long-term care requirements of the approved plan of operation have been carried out.

(4) IRREVOCABLE TRUST. If the owner creates an irrevocable trust, it shall be exclusively for the purpose of ensuring that the owner or any successor in interest will comply with the closure or long-term care requirements of the approved plan of operation. The trust agreement shall designate the department as sole beneficiary. The trustee shall be a bank or other financial institution located within the state of Wisconsin which has the authority to act as a trustee and whose trust operations are regulated and examined by the state or a federal agency. The trust corpus shall consist of cash, certificates of deposit, or U.S. government securities in the amount determined according to s. NR 520.08 (1) (a), (2) (a) or (3) (a), if required. A total of no more than ~~$100,000~~ $250,000 or the standard Federal Deposit Insurance Corporation insurance limit, in cash and certificates of deposit may be placed into escrow accounts or trust accounts established by the owner in the same bank or financial institution for the purposes of providing financial assurance to the department. U.S. government securities shall be used in these escrow or trust accounts for amounts in excess of ~~$100,000~~ $250,000 or the standard Federal Deposit Insurance Corporation insurance limit. All interest or coupon payments shall accumulate in the account. A duplicate original of the trust agreement for closure or long-term care, with original signatures shall be submitted to the department for approval as part of the initial operating license application. Trust forms shall be supplied by the department. The trust agreement shall provide that there shall be no withdrawal from the trust fund except as authorized in writing by the department. The trust agreement shall further provide that sufficient monies shall be paid from the trust fund to the beneficiary in the event that the owner or any successor in interest fails to complete the closure or long-term care requirements of the approved plan of operation. The department shall mail notification of its intent to use 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 closure or long-term care requirements of the approved plan of operation have been carried out.

(6) (c) A company using the net worth test to provide proof of financial responsibility for more than one facility, including facilities located outside of Wisconsin, shall use the total cost of compliance for all facilities in determining the net worth to closure and long-term care and remedial action cost ratio.

(8) OTHER METHODS. The department shall consider other financial commitments made payable to or established for the benefit of the department to ensure the owner or operator will comply with the closure and long-term care requirements of the approved plan of operation. The department shall review the request of any owner or operator to establish proof of financial responsibility to determine whether the proposed method provides a degree of assurance that is comparable to that provided by the methods listed in this section. The department may charge a fee to the owner or operator equal to the cost of acquiring services for the review of the request by an entity outside of the department. The owner shall submit the request and all supporting information as part of the plan of operation.

SECTION 206. NR 520.07 (3) and (5) are amended to read:

NR 520.07 (3) LONG-TERM CARE COSTS. At a minimum, the owner shall consider long-term care costs ~~shall~~ for the entire facility property and include, ~~where~~ when applicable, owner or operator inspections and land surface care; gas removal, treatment and monitoring; unsaturated zone monitoring; leachate pumping, transportation, monitoring and treatment; groundwater monitoring including sample collection and analysis; leachate collection line cleaning on an annual basis and leachate line televising every 5 years; annual cost of electricity for maintaining the closed site; monitoring device equipment maintenance, abandonment, and replacement costs; and a 10~~%~~ percent contingency. For the purposes of preparing the long-term care cost estimates, the owner shall assume that all monitoring requirements specified in the plan of operation ~~shall be assumed to~~ apply over the entire long-term care period. ~~Leachate~~ The owner shall assume that leachate quantity and strength ~~shall be assumed to~~ remain constant over time at the initial long-term care cost determination and the calculation of leachate generation volumes shall be performed assuming that the waste is at field capacity unless the department approves in writing an alternative method based on the leachate generation rates required under s. NR 512.12 (3) ~~is approved by the department in writing.~~ ~~Only~~ The department will only consider detailed performance data ~~will be considered~~ when evaluating estimates for leachate strengths and leachate generation volumes. For closed landfills already in long-term care, leachate generation rates may be based on actual annual leachate volumes produced over a minimum 10-year period during long-term care. 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 its WPDES permit. The expected operating life of all pumps, manholes, blowers, extraction wells, and other monitoring device equipment and engineering design features shall be specified in the plan of operation. As each of these features reach the end of their anticipated operating life, the cost of their replacement shall be added to the estimate for the appropriate year of the long-term care proof period.

(5) INFLATION RATE. The ~~rates of inflation applied to~~ cost estimates 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~~ adjusted for inflation annually using an inflation factor derived from the most recent implicit price deflator for gross domestic product published by the U.S. Department of Commerce in its *Survey of Current Business.* The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year. The projected ~~rate of~~ inflation factor 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~~ the average inflation factor for the last 5 full calendar ~~year~~ years.

SECTION 207. NR 520.08 (2) (a) 3. and 4. are amended to read:

NR 520.08 (2) (a) 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 ~~where~~ 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%~~ 1.5 percent.

4. In estimating future earnings on these accounts, 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%~~ 1.5 percent.

SECTION 208. NR 520.09 is amended to read:

NR 520.09 Changing methods of proof of financial responsibility. The owner of a solid waste ~~land disposal~~ facility may change from one method of providing proof of financial responsibility under s. NR 520.06 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.

SECTION 209. NR 520.10 (2) is amended to read:

NR 520.10 (2) Adjusted proof mechanisms shall be submitted to the department within 60 days after a new cost estimate, submitted in accordance with s. NR 520.07, is approved by the department. The adjusted proof mechanisms shall be in an amount adequate to cover the most recently approved cost estimate.

SECTION 210. NR 520.11 is amended to read:

NR 520.11 Access and default. Whenever on the basis of any reliable information, and after opportunity for a hearing, the department determines that an owner or operator of a solid waste ~~land disposal~~ facility is in violation of any of the requirements for closure, long-term care or remedial action specified in a department approval, the department and its designees shall have the right to enter upon the facility and carry out the closure, long-term care or remedial action requirements. The department may use part or all of the money deposited with it, or the money deposited in escrow or trust accounts, or performance or forfeiture bonds, or letters of credit, insurance, or funds accumulated under other approved methods to carry out the closure, long-term care or remedial action requirements.

SECTION 211. NR 520.13 is amended to read:

NR 520.13 Bankruptcy notification. The owner or operator of a solid waste facility ~~for the land disposal of solid waste~~ shall notify the department by certified mail of the commencement of a voluntary or involuntary proceeding under the bankruptcy code, 11 USC 101, et seq., naming the owner or operator as debtor, within 10 days after commencement of the proceeding.

SECTION 212. NR 520.14 (1) is repealed.

SECTION 213. NR 520.14 (1m) is created to read:

NR 520.14 (1m) TONNAGE FEES. All owners or operators of licensed solid waste land disposal facilities shall pay to the department applicable fees required under subch. VI of ch. 289, Stats., and s. NR 520.04 for each ton of solid waste received and disposed of at the facility until the facility no longer receives waste and closure activities are finalized.

SECTION 214. NR 520.14 (2) is repealed.

SECTION 215. NR 520.14 (3) (a) and (b) are amended to read:

NR 520.14 (3) (a) *Certification of waste received.* The owner or operator of a licensed solid waste land disposal facility or a processing facility ~~which~~ that converts solid waste to fuel, or a municipal solid waste combustor, or a solid waste incinerator shall certify, on a form provided by the department, the amount of solid waste received and disposed of or converted into fuel or burned during the preceding reporting period. The department shall specify the term of the reporting period on the certification form. The department shall ~~mail~~ provide the certification form to the owner or operator ~~every January~~ by April 1 of each year. The certification form shall be completed and returned to the department ~~if the tonnage or categories of solid waste disposed of during the preceding reporting period are different from the year immediately preceding the reporting period. The certification form shall be returned to the department within 45 days after mailing of the form by the department to the owner or operator~~ within 30 days.

(b) *Payment of fees.* Based on information certified by the owner or operator under par. (a), the department shall ~~mail~~ provide notice of fees due ~~in May~~ and the owner or operator shall within 30 days after ~~mailing of~~ receiving 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~~ receiving the fees notice ~~to the owner or operator~~ shall pay a late processing fee of ~~$50~~ $150.00 in addition to the appropriate fees.

SECTION 216. NR 520.14 (3) (c) 3. to 5. are amended to read:

NR 520.14 (3) (c) 3. For a solid waste disposal facility, the remaining capacity available for disposal as determined by an annual topographical survey. If no waste was accepted at or removed from the facility during the reporting period a topographical survey is not required.

4. A list of all ~~licensed~~ haulers transporting waste to the facility for disposal or treatment in the previous year, including the collection and transportation license number issued by the department, if applicable.

5. A list of the states of origin of solid waste disposed of or treated at the facility in the previous year and the type and amount, by weight, of that solid waste originating in each state.

SECTION 217. NR 520.14 (3) (c) 6. is repealed.

SECTION 218. NR 520.15 (1) (c) and (3) are repealed.

SECTION 219. NR 520.15 Table 2 is amended to read:

TABLE 2
Fee Schedule – All Facilities Except Landfills ~~And~~ and Surface Impoundments

Facility Type	Initial Site & Construction Inspection Fees ~~(1)~~1	Plan Review Fee ~~(2)~~	Plan Modification or Exemption Request	Construction Documentation Review Fee	Annual License Fee
Beneficial Use	$550	$550	$550	$550	N/A
Collection and Transportation	N/A	N/A	N/A	N/A	$110
Each Additional Truck	N/A	N/A	N/A	N/A	$33
Transfer Facility ~~(3)~~					
Exempt (up to 50 tons/day)	$550	N/A	N/A	N/A	$165
Small (>50 to 100 tons/day)	$550	$660	$330	$330	$165
Large (>100 tons/day)	$550	$1,650	$550	$660	$550
Processing Facility ~~(4)~~	$550	$3,300	$1,100	$1,100	$550
Storage Facility ~~(3)~~					
Exempt (up to 50 tons/day)	$550	N/A	N/A	N/A	$550
Non-Exempt (>50 tons/day)	$550	$1,650	$550	$660	$550
Incineration Facility~~(4)~~	$550	$7,700	$1,650	$1,100	$7,700
Air Curtain Destructor	$550	$330	$330	$165	$165
Woodburning Facility	$550	$165	$165	N/A	$165
One-Time Disposal	$550	$660	$660	N/A	N/A
Municipal Waste Combustor					
Small	$550	$1,650	$550	$660	$660
Large (>10 tons/day)	$550	$7,700	$1,650	$1,100	$7,700
Landspreading Facility					
Exempt	$550	$660	$550	N/A	N/A
Non-Exempt	$550	$1,650	$550	N/A	N/A
Infectious Waste Transport	N/A	N/A	N/A	N/A	$275
Each Additional Truck	N/A	N/A	N/A	N/A	$22
Infect. Waste Annual Report	N/A	N/A	N/A	N/A	$55 ~~(5)~~2
Medical Waste Reduction Plan	N/A	$660 ~~(6)~~3	$550	N/A	N/A
Low Hazard Exemption under s. NR 500.08	N/A	$2,000	N/A	N/A	N/A

(3m) and (4) or s. 289.43 (8), Stats.					

~~(1)~~1 The initial site inspection fee doubles to $1,100 if preliminary screening prior to field inspection indicates the possible presence of endangered resources or sites of historical or archeological significance. This fee also applies to each compliance inspection performed per s. NR 502.05 (3) (k) 8. or 502.07 (2r) (g).

~~(2) The plan review fees specified in Table 2 cover the department's review from initial submittal through approval or denial of the report or plan. An applicant may withdraw and revise or supplement a report or plan prior to it being deemed complete and resubmit it without paying an additional review fee. The applicant shall pay an additional plan review fee as specified in Table 2 for resubmittal of a plan which has been withdrawn after having been determined to be complete, or for review of a report that has twice been declared incomplete.~~

~~(3) A plan modification, as referred to in Table 2, is a submittal which proposes to modify a plan of operation or closure plan previously approved by the department.~~

~~(4) The department shall waive the plan review fees and license fees for a processing facility, including a composting facility, an electronics processing facility, or an incinerator that has a primary purpose of converting solid waste into usable materials, products, or energy. The waiver does not include the initial site and construction inspection fees or the construction documentation review fee.~~

~~(5)~~2 This is an annual filing fee. A $25 late fee will be added for annual reports received after March 1 of the following calendar year.

~~(6)~~3 If the department requires a medical facility to submit its medical waste reduction plan under s. NR 526.22, the plan review fee shall also be submitted.

SECTION 220. NR 520.15 Table 3 is repealed and recreated to read:

Table 3

Fee Schedule – Landfills and Surface Impoundments

Submittal, Inspection, or License Type	**LANDFILL TYPE**		
	All Landfills and Surface Impoundments except ch. NR 503 Landfills	Small Size Construction & Demo Waste Landfills (s. NR 503.09) and One-time Disposal Landfills	Intermediate Size Construction & Demo Waste Landfills (s. NR 503.10)

		(s. NR 503.08)	
Initial Site Report (ch. NR 509)	$3,300[1]	N/A	N/A
Feasibility Report (ch. NR 512)	$22,000 until 12/31/2026 $33,000 effective 1/1/2027 $44,000 effective 1/1/2028 except fee for vertical-only expansion is $40,000 Additional $2,000 per each s. NR 504.04 (3) locational item exemption request Additional $2,000 for combined ch. NR 140 groundwater standard exemption requests	N/A	N/A
Modification to a previously approved Feasibility Report	$5,000	N/A	N/A
Plan of Operation (chs. NR 503 and 514)	$7,700 until 12/31/2026 $16,500 effective 1/1/2027 $22,000 effective 1/1/2028 except fee for vertical-only expansion is $20,000	$1,100	$7,700
Modification to previously approved Plan of Operation (chs. NR 503, and 514, and s. NR 520.04 (4) (h))	$1,650 until 12/31/2026 $2,625 effective 1/1/2027 $3,500 effective 1/1/2028 $30,500 for plan of operation modification for initial permitting of CCR Landfills under s. NR 514.045 (1)	$550	$1,650

Supplemental Review (s. NR 520.04 (4) (i))			\$1,650 until 12/31/2026 \$2,625 effective 1/1/2027 \$3,500 effective 1/1/2028	N/A	N/A
Expedited Plan Modification (s. NR 514.09)			\$1,000 until 12/31/2026 \$1,750 effective 1/1/2027	N/A	N/A
Construction Documentation (ch. NR 503/516)[3]			\$1,100 until 12/31/2026 \$2,250 effective 1/1/2027 \$3,000 effective 1/1/2028	\$220	\$1,100
Closure Plan (ch. NR 514)			\$5,500	N/A	N/A
Landfill Stability Plan (s. NR 514.07 (9)) Submitted separately from a plan of operation report			\$2,500	N/A	N/A
Inspection Including the following: • Initial Site Inspections (chs. NR 503/509)[2] • Construction Inspections (chs. NR 503/516)			\$550 until 12/31/2026 \$900 effective 1/1/2027 \$1,210 effective 1/1/2028	\$550	\$550
Low Hazard Exemption under s. NR 500.08 (3m) and (4) or s. 289.43 (8), Stats.			\$2,000		
Annual Report[4]			\$500		
Research, Development, and Demonstration Plan (s. NR 514.10) If submitted separate from a plan of operation			\$2,500 initial plan submittal \$2,500 each renewal submittal		
Annual Operating License[5]	\$7,700	N/A	N/A		
Annual Operation Inspection Fee	N/A	\$1,650	\$3,850		
Long-term Care License[6]	\$6,600 until 12/31/2026	N/A	\$6,600		

	$7,700 effective 1/1/2027		
Annual Operating License or Long-term Care License Transfer Fee	$7,700	N/A	N/A

1 For an initial site report submittal that includes more than one location, the applicant shall pay a separate fee, as shown in Table 3, for each location.

2 This fee applies to each initial site inspection performed by the department and to each phase of construction to a maximum of 10 inspections. The initial site inspection fee doubles if preliminary screening prior to field inspection indicates the possible presence of endangered resources or sites of historical or archeological significance.

3 These fees apply to each facility construction documentation report submitted and to construction documentation reports for which a design capacity cannot be applied, such as sedimentation basins or remedial actions.

4 This fee applies to all annual reports for landfills, including CCR landfill annual reports under s. NR 506.20 (3), unless the report is also a renewal submittal for a research, development, and demonstration plan.

5 Landfills initially licensed before January 1, 2005 that have a total approved design capacity below 50,000 cubic yards shall pay an annual license fee of $1,650. Landfills initially licensed before January 1, 2005 that have a total approved design capacity from 50,000 cubic yards to 500,000 cubic yards shall pay an annual license fee of $3,850.

6 This fee is a one-time payment for the licensee's or landfill owner's perpetual long-term care responsibility.

SECTION 221. NR 520.15 Table 5 is repealed.

SECTION 222. NR 524.02 (2) is amended to read:

NR 524.02 (2) This chapter applies to the solid waste disposal facilities specified in sub. (1) only during the time that the facility is approved by the department to conduct solid waste disposal operations. Certification of persons participating in or responsible for the operation of solid waste disposal facilities is not required at solid waste disposal facilities that have completed closure activities.

SECTION 223. NR 524.05 (intro.), (1), and (3) (intro.) are amended to read:

NR 524.05 Municipal, mixed waste, and small and intermediate size construction and demolition waste disposal facilities. The owner or operator of a solid waste disposal facility shall comply with one of the following:

(1) MUNICIPAL, ~~AND~~ MIXED WASTE, AND INTERMEDIATE SIZE CONSTRUCTION AND DEMOLITION WASTE DISPOSAL FACILITIES. The owner or operator of a solid waste disposal facility that is not a small size construction and demolition waste disposal facility under s. NR 500.03 (~~121~~ 213) or a solid waste disposal facility used primarily for the disposal of ~~high volume~~ high-volume industrial waste shall do all of the following:

(3) SMALL SIZE CONSTRUCTION AND DEMOLITION WASTE DISPOSAL FACILITIES. The owner or operator of a small size construction and demolition ~~site~~ waste disposal facility shall do all of the following:

SECTION 224. NR 524.08 (3) (d) is amended to read:

NR 524.08 (3) (d) Persons seeking certification as facility managers and site operators shall file an examination application with the department and pay fees required under s. NR 520.04 (6). Applications and fees shall be submitted to the department no later than ~~10 business~~ 14 days prior to the examination date.

SECTION 225. EFFECTIVE DATE. This rule takes effect on the first day of the month following publication in the Wisconsin Administrative Register as provided in s. 227.22 (2) (intro.), Stats.

SECTION 226. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on [DATE].

Dated at Madison, Wisconsin _____.

STATE OF WISCONSIN

DEPARTMENT OF NATURAL RESOURCES

BY _____

Steven Little, Deputy Secretary