95-188

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

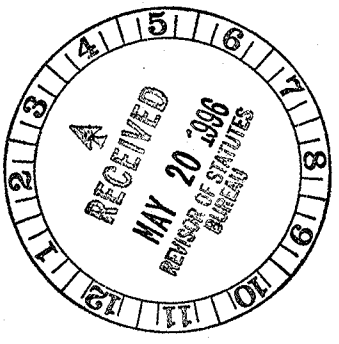
Tommy G. Thompson, Governor
George E. Meyer, Secretary

Box 7921
101 South Webster Street
Madison, Wisconsin 53707-7921
TELEPHONE 608-266-2621
FAX 608-267-3579
TDD 608-267-6897

STATE OF WISCONSIN)
) ss
DEPARTMENT OF NATURAL RESOURCES)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, George E. Meyer, Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. SW-40-95 was duly approved and adopted by this Department on February 28 and March 27, 1996. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.



IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 13th day of May, 1996.

George E. Meyer

George E. Meyer, Secretary

(SEAL)

7-1-96

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

IN THE MATTER OF repealing ss. NR 150.03(8)(e)5.c. and d., 150.03(8)(e)5.h., 150,03(8)(e)17., 500.08(3)(a), 502.06(3) and (4), 502.06(6)(g)note, 502.06(7), 502.07(6), 502.07(8), 502.10(4)(m) and (n), 502.10(5), 502.13, 502.14, 504.07(6)(a) to (c), 506.07(1)(d), 506.07(1)(j) and (o), 510.06 to .08, 510.10(3) and (4), 510.11, 512.07, 512.09(1) to (4), 512.10, 512.11(1)(c) to (e), 512.12(2)(i), 512.14, 512.16(4), 512.17(1)(e) and (f), 512.17(2)(c) to (e), 512.18(2)(e), 512.18(3)(f) and note, 512.19(1), 512.20 and .21, 514.06 (13) and (14), 516.04(1), 516.05(4)(b), 516.05(5), 516.06(1)(g), 516.06(2)(d), 516.07 (1)(d), 516.07(2)(e), 518.10, 520.07(5), 520.14(1), 520.15(1)(d), 526.09(5)(e)4., and 605.05(1)(l); renumbering NR 150.03(8)(e)5.i., 500.08(3)(b), 502.06(8), 514.06(3), 520.14(2) to (5) and 526.09(5)(e)5.; renumbering and amending NR 150.03(8)(e)5.e. to g., 150.03(8)(e)6.d. and e., 150.03(8)(e)18. to 20, 502.06(5) and (6), 502.07(3),(4), and (5), 502.10(4)(o) to (u), 504.07(5) to (8), 506.07(1)(e) to (u), 506.07(2) to (6), 506.16, 510.09 to .10, 512.08 to.09, 512.11(1), (2), (3), (4)(a) to (g), (5), 512.12 to .13, 512.15 to 512.19, 514.06(5) to (11), 514.06(12) and (15), 516.04(2), 516.05(intro), (1), (2,), (3)(intro), (a) and (b), (4)(intro), (a), 516.06(1), (2)(intro), (a), (b) and (c), 516.07(1)(intro), (a), (b), (c) and (e), (2)(intro), (a), (b) and (c), 518.04(1)(b), 518.04(6), 518.11, 520.07(4) and 520.15(2)(c); amending NR 150.03(8)(e)5.(intro), 150.03(8)(e)5.a. and b., 150.03(8)(e)6.(intro), 150.03(8)(e)6.a. and b., 150.03(8)(e)11., 150.03(8)(e)13., 150.03(8)(e)14., 150.03(8)(e)15.; 500.02(1), 500.04, 500.05(intro), 500.05(1), 500.05(3), 500.05(4), 500.05(6)h., 500.06(1)(title),(intro), 500.07, 500.08(1)(intro), 500.08(2), 500.08(3)(intro), 500.08(4), 500.08(5), 500.09, 500.10(intro), 502(title), 502.01(intro), 502.02(1), 502.06(title), 502.06(2)(intro), 502.06(2)(am), 502.06(2)(i), 502.07(2)(intro), 502.07(2m), 502.07(7)(title),(intro), 502.07(7)(f) and (g), 502.09(2)(a) to (d), 502.09(4)(intro), 502.09(4)(d) to (g), 502.09(4)(j), 502.09(5)(intro), 502.09(5)(a), 502.09(5)(k), 502.09(5)(n), 502.09(5)(q), 502.09(6)(title),(intro), 502.09(6)(a) and (b), 502.10(4)(title),(intro), 502.10(4)(a), (e), (f), (h), and (i), 504(title), 504.01, 504.02(01), 504.04(title)(1), 504.04(2)(a) and (b), 504.04(3)(title),(intro), 504.04(3)(a), 504.04(3)(d), 504.04(4)(intro), 504.04(4)(a), 504.04(4)(e), 504.07(title), 504.07(1)(a) and (b), 504.07(2), 506.02(1), 506.05(2), 506.06, 506.07(intro), 506.07(1)(a), 506.07(1)(c), 506.08(intro), 506.08(1)(a) and (b), 506.08(2), 506.08(3)(intro), 506.08(3)(a) to (c), 506.08(4), 506.08(6), 506.09(2)(a), 506.10(intro), 506.10(2)(a), 506.12(intro), 506.12(1)(title), 506.12(1)(a) and (b), 506.12(2), 506.13(1), 506.13(2), 506.13(3), 506.14(1), 506.14(2), 506.14(2)(a), (b), (d), and (e), 506.14(3), 506.15(1), 506.15(2)(title),(intro), 506.15(2)(a) and (b), 506.15(3), 506.15(3)(e), 506.155(intro), 506.155(1), 506.155(1)(a) to (c), 506.155(2), 510(title), 510.01, 510.02(1), 512.01, 512.02(1), 512.04, 512.05, 512.06(1), 512.06(2), 512.06(3), 514.01, 514.02(1), 514.04(1), 514.04(2), 514.04(3), 514.04(4), 514.04(5), 514.05(intro), 514.05(2)(intro), 514.05(2)(b), 514.05(5), 514.05(9), 514.05(11), 514.06(intro), 514.06(2), 514.06(4), 516.01, 516.02(1), 518(title), 518.01, 518.02(1), 518.04(intro), 518.04(1), 518.04(1)(a), 518.04(1)(f), 518.04(1)(g), 518.04(3)(intro), 518.04(4)(intro), 518.04(4)(c), 518.04(5)(title),(intro), 518.05(1), 518.05(3)(title), 518.05(4)(intro), 518.06(title),(intro), 518.06(1)(intro), 518.06(1)(b), 518.06(2)(intro), 518.06(2)(c), 518.06(3)(intro), 518.06(3)(e), 518.06(4)(a), 518.07(1)(title),(intro), 518.07(1)(b), 518.07(1)(e) and (f), 518.07(2)(intro), 518.07(2)(f), 518.07(2)(h), 518.08(title),(intro), 518.08(1)(intro), 518.08(1)(a), (b), (g), and (h), 518.08(2), 518.08(2)(a), 518.09, 520.02(intro), 520.04(1)(intro), 520.04(1)(a) to (c), 520.04(2), 520.04(3), 520.04(4)(intro), 520.04(4)(a), 520.06(intro), 520.06(1)(a) and (b), 520.06(2) to (4), 520.06(5)(a) and (b), 520.06(7)(a) and (b), 520.07(1), 520.07(2), 520.07(3), 520.10, 520.11, 520.12(2), 520.15(1)(intro), 520.15(1)(b), 520.15(2)(intro), table following 520.15(2), 524.04(1)(a), 524.05(1)(title), 524.05(1)(a), 526.04(1), 526.07(intro), 526.08(2), 526.09(1)(c) and (d), 526.09(3), 526.09(4)(e), 526.09(5)(e)1., 526.10(1), 526.10(3)(c)4., 526.11(1)(a), 526.11(2)(b)3., 526.11(2)(e), 526.12(1)(a), 526.12(1)(c), 526.12(1)(d), 526.12(2)(b), 526.12(3), 526.12(5), 526.14(2)(b)2., 526.15, 526.21(1)(intro), 526.21(1)(h), and 526.22(2); repealing and recreating NR 150.03(8)(e)6.c., 150.03(8)(e)9. and 10., 150.03(8)(e)12., 500.03, 502.04, 502.05, 502.06(1)(a) and (b), 502.07(1), 502.07(7)(c), 502.08, 502.09(1), 502.09(3), 502.09(4)(c), 502.10(1), (2), and (3), 502.11(title), 502.12, 504.04(3)(e), 504.05, 504.06, 504.07(3) and (4), 504.08, 506.04, 506.05(1), 506.08(5), 506.09(1), 506.10(1), 506.10(2)(b) and (c), 508, 510.04 and .05, 514.05(2)(c) to (k), 514.05(3) and (4), 514.05(6) to (8), 514.05(10), 514.07 and .08, 518.06(1)(e) to (l), 520.05, 520.08, 520.15(1)(a), 520.15(1)(c), table 1 following 520.15(2)(c), and table 2 following 520.15(2)(c); and creating NR 150.03(8)(e)6.d., 150.03(8)(e)6.g., 500.08(2)(d) to (f), 500.08(3)(b), 500.08(5)(b) and (c), 502.02(3), a note following 502.06(1)(c), 502.06(2)(ar), 502.06(2)(j), 502.06(4)(h), 502.07(2f), 502.07(3), 502.13, 503, 504.04(3)(g) to

(i), 504.07(1)(c) and (d), 504.07(5), 504.07(6)(a) and (b), a note following 504.07(8), 504.09, 504.10, 504.11, 506.055, 506.07(1)(i) and (n), 506.07(2), a note following 506.08(4), 506.085, 506.095, 506.105, 506.13(1)(a) to (d), 506.15(2)(c) to (e), 506.16 and 506.17, 506.19, 507, 509, 510.07(3), 512.09(1)(c) to (e), 512.09(2)(b) to (e), a note following 512.09(4)(a), 512.09(4)(f), 512.12(3), 512.13(4), 512.14(1)(e) and (f), 512.14(2)(c) and (d), 512.15(3)(f) and (g), 512.15(4), 512.16(1), 512.17 and .18, 514.06(3), 514.06(5), 514.06(15), 514.09, 516.04(2), 516.04(3) to (6), 516.05(1)(g) to (i), 516.05(2)(b) and (c), 516.05(2)(e), 516.06(1)(c), 516.06(1)(e), 516.06(1)(g) to (i), 516.06 (2)(b) to (e), 516.07(2), 516.07(4)(b), 516.07(5)(a), 516.07(5)(c), 518.04(1)(h), 518.04(1)(j), 518.04(1)(k), a note following 518.04(3)(c), 518.04(6), 520.04(1m), 520.07(4), 520.12(3), 526.05(2)(g), a note following 526.10(3)(d)2., and a note following 526.14(4)(a) relating to solid waste management.

Analysis Prepared by the Department of Natural Resources

Statutory authority: ss. 144.431(1)(a), 144.435(1), and (3), 144.44(1c), (2), (3), (4), (4e), (6), and (7), 144.441(1m), (2), (3), and (7m), 144.443, 144.48(3), 159.07, 159.08, and 227.11(2)(a), Stats.

Statutes interpreted: chs. 144, subch. IV and 159, Stats.

This order amends the solid waste management rules in chs. NR 500 to 526, hazardous waste management rules in ch NR. 605, and environmental analysis and review procedures for department actions in ch. NR 150. The order incorporates revisions required by U.S. Environmental Protection Agency minimum municipal solid waste standards, State statutory changes, and State initiated actions to streamline the rules by eliminating provisions which have been found to add paperwork without substantial environmental benefit, and make design and operational changes to keep pace with new and emerging technology.

1. Exemptions

A number of exemptions from solid waste regulation were added to the rule to recognize activities or waste types which presented a low hazard to human health and the environment. These included the use of crushed glass in concrete, asphalt and other paving applications, use of chipped wood for landscaping and other similar purposes, landspreading of wood ash for agricultural purposes, and processing of waste at the location where it is generated.

2. Composting

A section was created which addresses management practices for composting yard waste and other similar materials. The purpose of this section is to encourage nuisance free composting of these materials with minimal Department oversight.

3. Construction and Demolition (C&D) Waste Landfills

A new chapter (NR 503) was created which combines construction and demolition (C&D) waste regulations previously found in ch. NR 502 with a new category of C&D landfills that range in size from 50,000 to 250,000 cubic yards. This category was created to allow these mid-sized sites to be exempted from the rigorous landfill siting process while maintaining necessary environmental controls. These sites are expected to serve rural areas and demolition contractors.

4. Landfill Design and Operation Standards

Design and operation standards in chs. NR 504 and NR 506 for municipal solid waste landfills were modified to incorporate minimum federal Subtitle D requirements such as composite liners and caps (clay and geomembrane combinations), random load inspections, prohibition of free liquid containing waste, storm water control measures and record maintenance. Landfill design criteria were standardized where possible, including leachate line spacing and maximum length, trench configuration, leachate extraction and gas extraction systems. Design and testing standards are also established for geomembrane use.

5. Special Wastes

Special wastes were addressed in a number of ways. If the landfill owner develops a special waste plan, then preapproval of new waste streams are required only if they will constitute a significant percentage of the total design capacity of the landfill or if they would present a significant environmental concern. This provision could significantly reduce existing paper work and delays. The asbestos regulations have been changed to more closely mirror air management regulations (and provide a smooth transition between the air and solid waste codes) and reduce current strict requirements for lower risk non-friable asbestos containing material. Provisions from NR 590 were incorporated which allow disposal of minimal quantities of oil contaminated media (oil absorbants) in landfills.

6. Petroleum Contaminated Soil

A new section was added to ch NR 506 addressing acceptance of petroleum contaminated soil at landfills which reflects requirements contained in NR 722 (standards for selecting remedial actions) and NR 419 (control of organic compound emissions). It also restricts a landfill from accepting soil with more than 2,000 ppm of organics unless no reasonable alternative is available. This provision is intended to prevent highly contaminated soils from potentially causing problems with landfill leachate at wastewater treatment plants.

7. Landfill Performance Evaluation

A landfill evaluation section was developed in ch NR 506 to require landfill operators to do periodic formal evaluations of the performance of their landfills and certify compliance with solid waste regulations and approvals. The evaluation must be done routinely every three years although the department may require more frequent evaluations if the landfill is having compliance problems. The purpose of the evaluation is to prevent minor problems from developing into major problems that become prohibitively expensive for the landfill owner to remediate and often lead to protracted enforcement proceedings. Periodic performance evaluations are a good business practice and serve to demonstrate to a skeptical public that landfills are operating in an environmentally sound manner.

8. Environmental Monitoring

A new chapter (NR 507) was created to incorporate existing requirements from ch NR 508 with new requirements from federal Subtitle D rules. The environmental monitoring requirements were extensively modified to comply with federal Subtitle D requirements yet provide continuity with existing monitoring plans and Wisconsin's groundwater law. The rules minimize the number of wells potentially subject to extensive federal Subtitle D assessment monitoring. The frequency of groundwater monitoring was reduced from quarterly to semi-annually. This will result in substantial cost savings without significantly reducing the effectiveness of the monitoring program. Chapter NR 508 contains requirements for complying with federal Subtitle D if assessment monitoring is triggered. These provisions build in some flexibility in the parameters that are tested for.

9. Preconstruction Meeting and Report

The existing practice of requiring preconstruction meetings and reports for all construction that involves geomembranes has been codified in CH NR 516. This practice has been extremely beneficial for both the landfill owner and the department in reaching agreement on the construction details prior to doing the work. It also facilitates department review of the completed construction documentation, leading to quicker turnaround of approvals when time is critical.

10. Construction Documentation Certification

Provisions were added to ch NR 516 to strengthen the certification requirements and provide greater accountability for the engineering professionals that oversee site construction. Construction events have been specified for which a professional engineer (PE) or a technician under a PE's direct supervision must be present. The certification section of the documentation report must be signed by all PEs and the technicians under their supervision, with a listing of the construction events that each person was responsible for.

11. Financial Responsibility for Closure and Long Term Care

The long term care period for landfills in ch NR 520 has been extended to 40 years in accordance with State statutes. The complicated mathematical formulas for calculating financial responsibility fund amounts have been eliminated in favor of a streamlined narrative. The department has already been using a new computer spreadsheet format following this approach that has been much easier to use for the landfill owners. A table showing closure and long term care requirements was added to provide clarity, making it easier for landfills to correctly determine which regulations applied to their landfill. This table also incorporates statutory changes and federal Subtitle D changes. Wording has been added which prohibits captive insurance companies (companies which are substantially controlled and funded by the landfill operator) from providing proof of financial responsibility. No more than $100,000 in cash and certificates of deposit may be used in establishing financial responsibility to assure that all fund accounts are insured by the Federal Deposit Insurance Corporation.

12. License and Plan Review Fees

The license issuance procedures have been modified to require a two year license period for October 1996 to September 1998, with collection of fees prior to issuing the license. A waste tonnage surcharge will also be added for a 1 1/2 year period. Both of these provisions will sunset at the end of the two year period. In addition, fee levels were established for newly created categories of landfills such as intermediate size construction and demolition waste landfills.

13. Municipal Waste Combustor Ash

The exemption from hazardous waste regulations for municipal waste combustor ash has been deleted from ch NR 605 to comply with a U.S. Supreme Court decision. The requirement for submitting a plan of operation for hauling ash has also been eliminated.

14. Environmental Analysis And Review Procedures for Department Actions

Changes were made to the type listings in ch NR 150 to reflect updated cross references. The issuance of exemptions (for beneficial reuse of high volume industrial waste and low hazard waste) was changed from a Type III action (issuance of a news release or public notice) to Type IV (no action). Wording was also added clarifying the definition of a large non-landfill solid waste facility vs. a small facility.

SECTION 1. NR 150.03(8)(e)5.(intro) is amended to read:

NR 150.03(8)(e)5. Report approvals under s. 144.44(2) and (9), Stats., chs. NR 157, 182, ~~500 to 685~~ 512 and 680 for:

SECTION 2. NR 150.03(8)(e)5. a. and b. are amended to read:

NR 150.03(8)(e)5. a.	New solid waste landfills, or expansion of existing solid waste landfills, with a new or additional design capacity of over 500,000 cubic yards.	II
b.	New solid waste landfills, or expansion of existing solid waste landfills, with a new or additional design capacity of 500,000 cubic yards, or less ~~for nonhazardous solid waste~~.	III

SECTION 3. NR 150.03(8)(e)5. c. and d. are repealed.

SECTION 4. NR 150.03(8)(e)5. e. to g. are renumbered NR 150.03(8)(e)5. c. to e.,and NR 150.03(8)(e)5.e., as renumbered is amended to read:

NR 150.03(8)(e)5. e. Any hazardous waste treatment, including incineration, or storage facility except under subpar. ~~i~~ f. II

SECTION 5. NR 150.03(8)(e)5. h. is repealed.

SECTION 6. NR 150.03(8)(e)5. i. is renumbered to NR 150.03(8)(e)5. f.

SECTION 7. NR 150.03(8)(e)6.(intro) is amended to read:

NR 150.03(8)(e)6. Plan approvals under chs. NR ~~500 to 590~~ 502, 503, 514 and 518 for:

SECTION 8. NR 150.03(8)(e)6. a. and b. are amended to read:

NR 150.03(8)(e)6. a. Transfer, municipal solid waste combustor, containerized storage, processing or incinerator facilities with a design capacity ~~of~~ equal to or greater than 50,000 cubic yards or 100 tons per day (wet weight) ~~or more based on at least 8 hours of operation each day~~. II

b. Transfer, municipal solid waste combustor, containerized storage, processing or incinerator facilities with a design capacity of less than 50,000 cubic yards or 100 tons per day (wet weight) ~~based on a least 8 hours of operation each day~~. IV

SECTION 9. NR 150.03(8)(e)6. c. is repealed and recreated to read:

NR 150.03(8)(e)6. c. Noncontainerized storage facilities with a design capacity equal to or greater than 50,000 cubic yards or 100 tons per day (wet weight). II

SECTION 10. NR 150.03(8)(e)6. d. and e. are renumbered to NR 150.03(8)(e)6. e. and f., and NR 150.03(8)(e)6. f. as renumbered is amended to read:

NR 150.03(8)(e)6. f. Land spreading of solid waste under ~~ch.~~ s. NR ~~518~~ 518.06. III

SECTION 11. NR 150.03(8)(e)6. d. is created to read:

NR 150.03(8)(e)6. d. Noncontainerized storage facilities for non-hazardous solid waste with a design capacity of less than 50,000 cubic yards or 100 tons per day (wet weight). IV

SECTION 12. NR 150.03(8)(e)6. g. is created to read:

NR 150.03(8)(e)6. g.	Yard, farm and vegetable food waste facilities under s. NR 502.12.	IV

SECTION 13. NR 150.03(8)(e)9. and 10. are repealed and recreated to read:

NR 150.03(8)(e)9.	Construction Documentation Reports	Approval of reports for solid or hazardous waste facility under chs. NR 502, 503, 516, and s. 660.16 or 680.08.	IV
10.	One-Time Disposal, Construction and Demolition Landfills	Approval of facilities for one-time disposal of solid waste or construction and demolition landfills with a design capacity equal to or less than 250,000 cubic yards under ch. NR 503.	IV

SECTION 14. NR 150.03(8)(e)11. is amended to read:

NR 150.03(8)(e)11.	Approval of plans for the closure of a solid or hazardous waste facility under s. NR ~~514.07 or 685.05(1)~~ 514.08 or 685.05.	IV

SECTION 15. NR 150.03(8)(e)12. is repealed and recreated to read:

NR 150.03(8)(e)12.	Solid Waste Air Curtain Destructor and Wood Burning Facilities	Licenses issued under s. 144.436, Stats., and approvals of air curtain destructor and wood burning facilities under ch. NR 502.	IV

SECTION 16. NR 150.03(8)(e)13. to 15. are amended to read:

NR 150.03(8)(e)13.	Exemptions from licensing granted under s. 144.44(7), Stats., or chs. ~~500 to 590~~ 500 to 536.	~~III~~ IV
14.	Approval of new or modified monitoring plans at facilities licensed under ~~chs.~~ ch. NR ~~500 to 590~~ 507.	IV
15.	Variances, waivers and exemptions from licensing requirements under s. 144.64 (3), Stats., ~~ch. NR 625 or ss. 680.20 and 680.21~~ s. 600.09 or 680.50.	IV

SECTION 17. NR 150.03(8)(e)17. is repealed.

SECTION 18. NR 150.03(8)(e)18. to 20. are renumbered NR 150.03(8)(e)17. to 19., and NR 150.03(8)(e)17. and 150.03(8)(e)18. as renumbered are amended to read:

NR 150.03(8)(e)17.		Approval of informal plans of operation for collection and storage facilities under ~~ch.~~ s. NR ~~590~~ 590.23.	IV
NR 150.03(8)(e)18.(title)	**Tonnage Fees and Financial Responsibility**	Actions under ss. 144.441~~,~~ to 144.443, Stats., for solid or hazardous waste ~~disposal facilities~~ landfills.	IV

SECTION 19. NR 500.02(1) is amended to read:

NR 500.02(1) Except as otherwise provided, this chapter governs all solid waste facilities as defined in s. 144.43(5), Stats., except hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690, and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

SECTION 20. NR 500.03 is repealed and recreated to read:

NR 500.03 DEFINITIONS. The following definitions as well as the definitions in ch. 144, Stats., are applicable to the terms used in chs. NR 500 to 536 unless the context requires otherwise.

(1) "ACL" means alternative concentration limit.

(2) "Active facility life" means the period of operation beginning with the initial receipt of solid waste at a facility until the department issues a closure and long term care license in accordance with s. NR 520.04(3) or, if a closure and long term care license is not required, until the facility ceases to accept waste and has completed all closure activities in accordance with chs. NR 500 to 536 and any applicable plan approvals.

(3) "Air curtain destructor" means a solid waste facility that combines a fixed wall, open pit and mechanical air supply which uses an excess of oxygen and turbulence to accomplish the smokeless combustion of clean wood, brush, stumps or trees.

(4) "Airport" means a public-use airport open to the public without prior permission and without restrictions within the physical capacities of available airport facilities.

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

(6) "Anti-seep collar" means a device which is attached to a leachate transfer pipe to prevent the migration of leachate along the pipe.

(7) "Applicant" means a person applying for a license or approval for a solid waste facility.

(8) "Approved facility" has the meaning specified in s. 144.441 (1) (a), Stats.

(9) "Approved plan of operation" means a plan of operation approved under s. 144.44 (3), Stats.

(10) "Areas susceptible to mass movement" means those areas characterized as having an active or substantial possibility of mass movement where the movement of earth material at, beneath, or adjacent to the landfill, because of natural or human-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, solifluction, block sliding, and rock fall.

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

(12) "Asbestos" means any material which contains fibrous chrysotile, crocidolite, amosite minerals or the fibrous varieties of anthopyllite, tremolite and actinolite.

Note: Asbestos containing material is further defined in subs. (25), (26), and (91).

(13) "Assessment monitoring" means groundwater monitoring conducted at Subtitle D wells in accordance with s. NR 508.04 when a groundwater standard is attained or exceeded at a Subtitle D well.

(14) "ASTM" means the American society for testing and materials.

(15) "Background groundwater quality" has the meaning specified in s. NR 140.05(3).

(16) "Base grade" means the elevation of a facility or portion of a facility following placement of the liner but prior to the placement of any granular drainage blanket.

(17) "Baseline" means groundwater quality at a point that is measured after the parameters have stabilized following installation of a monitoring well.

(18) "Bedrock" means all rock formations at or beneath the land surface.

(19) "Beneficial use or reuse" means the recycling or use of solid waste in a productive use.

(20) "Bird hazard" means an increase in the likelihood of a bird and aircraft collision that may cause damage to the aircraft or injury to its occupants.

(21) "Building materials" means non-combustible construction material including brick, concrete and drywall.

(22) "Bulk blood and body fluids" means drippable or pourable quantities or items saturated with whole blood or blood components, blood specimens, semen, vaginal secretions, cerebrospinal fluid, synovial fluid, amniotic fluid, peritoneal fluid, peritoneal dialysate, pericardial fluid, pleural fluid and other body fluids visibly contaminated with blood.

(23) "Capital expenditures" has the meaning specified in s. 144.443 (1) (a), Stats.

(24) "Captive insurance company" means a closely-held company owned by one or more organizations, parents, whose original purpose was and may continue to be, to insure some or all of the risks of shareholders or affiliated organizations.

(25) "Category I nonfriable asbestos containing material" has the meaning specified in s. NR 447.02(1)(a).

Note: Section NR 447.02(1)(a) defines "category I nonfriable asbestos containing material" to mean "asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, polarized light microscopy, incorporated by reference in ch. NR 484, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure".

(26) "Category II nonfriable asbestos containing material" has the meaning specified in s. NR 447.02(1)(b).

Note: Section NR 447.02(1)(b) defines "category II nonfriable asbestos containing material" to mean any material, excluding category I nonfriable asbestos containing material, containing more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, polarized light microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

(27) "Certificate of deposit" means a certificate issued by a bank or financial institution acknowledging receipt of a specified sum of money in a special kind of time deposit, drawing interest and requiring written notice for withdrawal.

(28) "CFR" means the code of federal regulations.

(29) "Chemotherapy waste" means items contaminated with antineoplastic chemotherapy drugs, including drug dispensing devices, gloves and other items that have come into contact with chemotherapy drugs.

(30) "Clay" means all soil particles less than .005 mm.

(31) "Clinic" has the meaning given in s. 159.07(7)(c)1.a., Stats.

(32) "Closing" has the meaning specified in s. 144.43 (1m), Stats.

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

(34) "Closure period" means the 90-day period after the facility ceases to accept waste, unless otherwise specified in the approved plan of operation.

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

(36) "Coarse-grained soil environment" means a soil environment in which a majority of the material within 25 feet of the proposed sub-base of the facility has less than 50% by weight passing the #200 sieve and which contains no extensive and continuous deposits of fine-grained or plastic soils.

Note: The determination as to whether a soil environment meets the definition of a coarse-grained soil environment shall be based on an interpretation of soil stratigraphy after consideration is given to the deposition and origin of the deposits and their engineering classification under the unified soil classification system specified in ASTM standard D-2487-69 (1975). Copies of this publication are available from ASTM, 1916 race street, Philadelphia, PA 19103-1187. Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

(37) "COD" means chemical oxygen demand.

(38) "Collection" means the physical aggregating of solid waste from its primary source and includes all activities up to such time as the waste is delivered to a facility for transfer, processing, treatment or disposal.

(39) "Collection and transportation service" means a solid waste facility which utilizes containers, vehicles or other means for the collection and transportation of solid waste.

(40) "Collection basin lysimeter" means a device which is constructed with a geomembrane for monitoring the unsaturated zone.

(41) "Commercial solid waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes.

(42) "Company" has the meaning specified in s. 144.443 (1) (b), Stats.

(43) "Completeness determination" means a determination by the department that the minimum submittal requirements established by chs. NR 500 to 536 for a plan or report have been met.

(44) "Compost" means a material which has been decomposed by composting to the extent that the material will not significantly reheat due to action of microorganisms when subjected to optimum oxygen, moisture, nutrients, and thermal conditions.

(45) "Composting" means an aerobic decomposition process by which microorganisms or soil invertebrates reduce materials into component compounds, producing carbon dioxide and water as primary by-products.

(46) "Condensate" means the liquid which is generated due to a change in the temperature or pressure of landfill gas.

(47) "Conductivity" means the measurement of a water's ability to transmit an electrical current in micromhos/cm before correcting to 25°C.

(48) "Confining unit" means a geologic formation, group of formations or part of a formation which restricts the movement of groundwater to or from a

geologic formation, group of formations or part of a formation with a higher hydraulic conductivity than the confining unit.

(49) "Construct" means to engage in facility construction for a new or expanded solid waste facility including but not limited to the erection or building of new structures, replacement, expansion, remodeling, alteration or extension of existing structures, the acquisition and installation of equipment associated with the new, expanded or remodeled structures, and clearing, grading or liner construction.

(50) "Construction and demolition waste" means solid waste resulting from the construction, demolition or razing of buildings, roads and other structures.

Note: Construction and demolition waste typically consists of concrete, bricks, bituminous concrete, wood, glass, masonry, roofing, siding and plaster, alone or in combinations. It does not include waste paints, solvents, sealers, adhesives or similar materials.

(51) "Construction documentation report" means a written report submitted under the seal of a registered professional engineer in the state of Wisconsin documenting that a solid waste facility has been constructed in substantial compliance with a department approved plan of operation or chs. NR 500 to 536.

(52) "Container" means a manufactured receptacle or man-made receptacle used to confine or hold solid waste.

(53) "Containerized storage facility" means a storage facility designed and operated to use containers for the storage and containment of solid waste. A building which is enclosed on 4 sides and has a floor and roof is considered a container for the purposes of this definition.

(54) "Cultural features" means any structure or landscape alteration intended for use by humans.

(55) "Critical habitat areas" means any habitat determined by the department to be critical to the continued existence of any endangered or threatened species listed in ch. NR 27.

(56) "Decontamination" means a process of removing disease-producing microorganisms and rendering an object safe for handling.

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

(58) "Design capacity" means the total volume in-place in cubic yards of solid waste disposed of in a land disposal facility together with daily and intermediate cover utilized in the facility, but not including liner material, drainage blanket, final cover or topsoil.

(59) "Design capacity for a facility which burns municipal solid waste" means the facility's rated capacity or any permit limitation, whichever is less, for burning municipal solid waste. The design capacity for facilities that burn multiple fuel types such as refuse derived fuel, wood and coal will be determined based on the municipal solid waste portion of the fuel.

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

(61) "Detection monitoring" means routine groundwater monitoring conducted in accordance with s. NR 507.19.

(62) "Detrimental effect on ground or surface water" means having a significant damaging impact on ground or surface water quality for any present or future consumptive or nonconsumptive uses.

(63) "Director" means the person in the highest ranking position in a medical facility, including but not limited to the administrator, chief executive officer or chair of the board of directors.

(64) "Discarded material" means material that is no longer of use to the generator of the material in the process from which it is generated.

(65) "Discharge area" means an area in which there are upward components of hydraulic head in the aquifer.

(66) "Disinfection" means a process that kills or destroys most disease-producing microorganisms, except spores.

(67) "Displacement" means the relative movement of any 2 sides of a fault measured in any direction.

(68) "Distillate waste product" has the meaning specified in s. 144.438 (1) (a), Stats.

(69) "DMZ" means design management zone.

(70) "DNR" means department of natural resources.

(71) "Dredge material" means any solid waste removed from the bed of any surface water.

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

(73) "Environmentally sound storage facility" has the meaning specified in s. 144.438 (1) (b), Stats.

(74) "EPA" or "USEPA" means the United States environmental protection agency.

(75) "ES" means enforcement standard.

(76) "Establish" means to bring a new or expanded solid waste facility into existence.

(77) "Expand an existing land disposal facility" means to construct a solid waste disposal facility or dispose of solid waste on land not previously licensed or to dispose of an additional volume of waste beyond the volume previously approved by the department. The term also includes the disposal of approved volumes of solid waste on existing licensed land if done in a manner not in accordance with a department plan approval or in a manner significantly different from past operations unless the department approves the proposed changes in writing.

(78) "Facility" means a solid waste facility.

(79) "False groundwater standard exceedance" means a sample result that exceeds a groundwater standard due to a source other than a solid waste disposal facility or due to laboratory or sampling error.

(80) "Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

(81) "Feasibility report" means a report required under s. 144.44 (2) (a), Stats.

Note: A feasibility report for a specific solid waste facility must describe the facility, surrounding area, and proposed operation in terms of land use, topography, soils, geology, groundwater, surface water, proposed waste quantities and characteristics, preliminary facility design concepts, environmental impacts, the need for the facility and waste reduction and recovery alternatives.

(82) "Field blank" means a sample of reagent grade water which is processed in the field in the same manner as the groundwater samples.

(83) "Fill area" means the area proposed to receive or which is receiving direct application of solid waste.

(84) "Filter pack" means the sand, gravel or both in direct contact with or directly above the well screen.

(85) "Final cover" means cover material that is applied upon closure of a landfill.

(86) "Fine-grained soil environment" means a soil environment in which a majority of the material within 25 feet of the proposed sub-base of the facility has at least 50% by weight passing the #200 sieve and which contains no extensive and continuous deposits of coarse-grained or non-plastic soils.

Note: The determination as to whether a soil environment meets the definition of a fine-grained soil environment shall be based on an interpretation of soil stratigraphy after consideration is given to the deposition and origin of the deposits and their engineering classification under the unified soil classification system specified in ASTM standard D-2487-69 (1975). Copies of this publication are available from ASTM, 1916 race street, Philadelphia, PA 19103-1187. Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

(87) "Floodplain" means the land which has been or may be hereafter covered by flood water during the regional flood as defined in ch. NR 116, and includes the floodway and the flood fringe as defined in ch. NR 116.

(88) "Food chain crops" means tobacco and crops grown for human consumption, and pasture, forage and feed grain for animals whose products are consumed by humans.

(89) "Fracture frequency" means the average number of natural fractures or bedding planes calculated from a rock core collected from a boring.

Note: Fracture frequency is calculated by dividing the number of natural fractures or bedding planes in a rock core by the total length of the core in feet.

(90) "Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

Note: Free liquids shall be determined using the paint filter liquids test (Method 9095) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" EPA Pub. No. SW-846. Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state, and the revisor of statutes. Copies may be obtained from the superintendent of documents, U.S. government printing office (GPO), Washington, D.C. 20401.

(91) "Friable asbestos material" has the meaning specified in s. NR 447.02(16).

Note: Section NR 447.02(16) defines "friable asbestos material" to mean any material containing more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, polarized light microscopy, incorporated by reference in ch. NR 484 that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. If the asbestos content of the friable asbestos containing material is less than 10%, as determined by a method other than point counting by polarized light microscopy, the asbestos content shall be verified by point counting using polarized light microscopy.

(92) "Garbage" has the meaning specified in s. 144.01 (4), Stats.

(93) "Gas condensate" means the liquid generated as a result of gas recovery process at the landfill.

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

(95) "Geotextile" means a porous fabric manufactured from synthetic materials.

(96) "Groundwater" means any waters of the state, as defined in s. 144.01 (19), Stats., occurring in a saturated subsurface geological formation of rock or soil.

(97) "Groundwater standard" means a preventive action limit, alternative concentration limit or enforcement standard established in accordance with ch. NR 140 and s. NR 507.27.

(98) "Hazardous air contaminant" has the meaning specified in s. NR 445.02 (6).

(99) "Hazardous substance" has the meaning specified in s. 144.01 (4m), Stats.

(100) "Hazardous waste" has the meaning given in s. NR 600.03(98).

(101) "High-volume industrial waste" has the meaning specified in s. 144.44 (7) (a) 1., Stats.

(102) "Home generator of infectious waste" means a person who generates infectious waste through self-administration of medication or who receives injected medication at home from other members of the household or from employees of a home care or hospice program.

(103) "Holocene" means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

(104) "Hospital" has the meaning given in s. 50.33(2), Stats.

(105) "Household waste" means any solid waste including garbage, trash, and sanitary waste in septic tanks which is derived from households, including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas.

(106) "Human tissue" means tissue removed from human beings. Human tissue does not include hair or nails, but does include teeth.

(107) "Hydraulic connection" means groundwater interflow within the zone of saturation occurring between 2 formations which may or may not be separated by an intermediate layer.

(108) "Incinerator" means a processing facility designed and operated for controlled burning of solid wastes primarily to achieve volume and weight reduction or to change waste characteristics. Incinerator does not include a facility that uses solid waste as a supplemental fuel where less than 30% of the heat input to the facility is derived from such supplemental fuel.

(109) "Industrial waste" means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under chs. NR 600 to 690. Industrial waste may include, but is not limited to, waste resulting from the following manufacturing processes; electric power generation; fertilizer and agricultural chemicals; food and related products and by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing and foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

(110) "Infectious waste" has the meaning given in s. 159.07(7)(c)1.c., Stats.

(111) "Infectious waste generator" means a person or group of persons under the same corporate ownership and located on the same property who produces infectious waste.

(112) "Infectious waste treatment" means rendering an infectious waste non-infectious. For human tissue, this term means rendering the waste both non-infectious and unrecognizable as human tissue. For sharps, this term means rendering the sharp non-infectious and rendering the sharp broken and not able to be reused, such as by a grinding or shredding process.

(113) "Infectious waste treatment facility" means a solid waste processing facility where infectious waste treatment is performed. Infectious waste treatment facilities include but are not limited to individual treatment units, such as autoclaves, and groups of treatment units within the same room. Infectious waste treatment facilities do not include the disinfection of an area after a spill and the disinfection of waste or reusable items in a small disinfectant soak pan.

(114) "Initial site report" means a report submitted under ch. NR 509 which describes a proposed solid waste disposal facility in sufficient detail to

allow the department to give a written opinion on whether or not a feasibility report should be prepared.

(115) "In-situ testing" means hydraulic conductivity tests performed on the in-place soils.

(116) "Interest bearing accounts" means escrow accounts, trust accounts or cash deposits with the department.

(117) "Intermediate size construction and demolition waste landfill" means a landfill with a design capacity of at least 50,000 cubic yards but no more than 250,000 cubic yards and used for the disposal of only construction and demolition wastes.

(118) "Karst terranes" means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

(119) "Land disposal facility" means a solid waste facility where solid waste is placed in a landspreading facility, a landfill, or surface impoundment facility for disposal purposes.

(120) "Landfill" means a land disposal facility, 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.

(121) "Landspreading facility" means a land disposal facility where solid waste is discharged, deposited, placed or injected in thin layers onto the land surface of the facility, or is incorporated into the top several feet of the surface soil, for agricultural, silvicultural or waste disposal purposes.

(122) "Leachate" means water or other liquid that has percolated through or contacted solid waste or gases generated by solid waste.

(123) "Leachate collection and removal system" means a system capable of collecting and removing leachate or other liquids from a solid waste facility.

(124) "Leachate monitoring system" means a system used to monitor the elevation, quantity or quality of leachate and other liquids generated within a solid waste facility.

(125) "Limit of detection" has the meaning specified in s. NR 149.03(15).

Note: Section NR 149.03(15) defines "limit of detection" to mean "the lowest concentration level that can be determined to be significantly different from a blank".

(126) "Limit of quantitation" has the meaning specified in s. NR 149.03(16).

Note: Section NR 149.03(16) defines "limit of quantitation" to mean "the level above which quantitative results may be obtained with a specified degree of confidence". The limit of quantitation is 10/3 or 3.333 times the limit of detection.

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

(128) "Liner" means a constructed, continuous layer of natural or artificial materials placed beneath and on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral movement of leachate.

(129) "Liquid waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

Note: Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state, and the revisor of statutes. Copies may be obtained from the superintendent of documents, U.S. government printing office (GPO), Washington, D.C. 20401.

(130) "Lithified earth material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

(131) "Lithostratigraphic unit" means a geologic formation that has a substantial degree of overall uniformity including such characteristics as color, mineralogic composition and grain size.

(132) "Long-term care" has the meaning specified in s. 144.43 (3), Stats.

(133) "Low-flow sampling technique" means the collection of a groundwater sample from a monitoring well using equipment that draws the sample into the equipment and discharges the sample to the sample container at a rate of less than 350 milliliters/minute.

(134) "Lower explosive limit" means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and standard atmospheric pressure.

(135) "Lysimeter" means a device used for collecting samples of soil moisture from the unsaturated zone.

(136) "Major appliance" has the meaning specified in s. 159.01(3), Stats.

Note: Section 159.01(3), Stats., defines "major appliance" to mean "a residential or commercial air conditioner, clothes dryer, clothes washer, dishwasher, freezer, microwave oven, oven, refrigerator, furnace, boiler, dehumidifier, water heater or stove".

(137) "Major phase" means a horizontal portion of the landfill which is designed to be constructed at one time.

(138) "Major soil unit" means any soil layer which is greater than 2 feet thick and is laterally extensive beneath the proposed or existing limits of filling, or which affects the local hydrogeologic flow system.

(139) "Manifest" has the meaning given in s. 144.48(1)(am), Stats.

(140) "Materials recovery facility" has the meaning specified in s. NR 544.03(12).

Note: Section NR 544.03(12) defines "materials recovery facility" to mean "a facility where 2 or more of the materials specified in s. 159.07(3) or (4), Stats., not mixed with other solid waste, are processed for reuse or recycling by conversion into a consumer product or a product which is used as a raw material in a commercial or industrial process. A materials recovery facility does not include a facility operated by a pulp or paper mill which utilizes source separated secondary fiber or paper for use as a raw material in a commercial product".

(141) "Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90% 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.

(142) "Medical facility" means a hospital, clinic or nursing home.

(143) "Medical waste" has the meaning given in s. 144.48(1)(b), Stats.

Note: Medical waste does not mean all of the waste produced in a medical setting. Waste materials from a medical setting which do not meet the definition of "infectious waste" in statutes are considered to be "medical waste" only if the generator mixes them with infectious waste or manages them as though they are infectious waste.

(144) "Medical waste incinerator" has the meaning given in s. 159.07(7)(c)1.cr., Stats.

(145) "Medical waste reduction policy" is a policy developed by a medical facility and designed to reduce the amount of medical waste generated within that medical facility, to prevent the mixing of infectious waste with waste which is not infectious and to promote practical alternatives to disposable items in the medical setting.

(146) "Method blank" has the meaning specified in s. NR 149.03(18).

Note: Section NR 149.03(18) defines "method blank" to mean "a sample of reagent grade water which is processed through all the preparation steps and the analytical method at the same time and in the same manner as the samples are processed".

(147) "Microbiological laboratory waste" means cultures derived from clinical specimens or laboratory equipment which has come in contact with these cultures.

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

(149) "Monofill cell for residue produced by burning municipal solid waste" means a landfill or a specified area within a landfill for residue disposal which is designed to prevent mixing of residue and wastes which produce acidic leachates and which is designed to prevent leachate from adjacent cells from coming into contact with the residue.

(150) "Municipal solid waste" means:

(a) Household waste, or

(b) Solid waste from commercial or industrial sources that does not contain hazardous waste and does not contain any process waste which is the direct or indirect result of the manufacturing of a product or the performance of a service such as dry cleaners or paint shops. "Municipal solid waste" does not include waste wood, papermill sludge, sewage sludge, tires or industrial process wastes.

(151) "Municipal solid waste combustor" means any solid waste treatment facility that is used to burn municipal solid waste or products derived from municipal solid waste, alone or in conjunction with other materials.

(152) "Municipal solid waste landfill" means a landfill which receives, or has received in the past, municipal solid waste. A municipal solid waste landfill may also receive other types of nonhazardous waste such as industrial solid waste and demolition waste. A municipal solid waste landfill may be publicly or privately owned.

(153) "Noncombustible materials" means solid waste which will not support combustion in the ambient atmosphere.

(154) "Noncontainerized storage facility" means a storage facility which is not a containerized storage facility.

(155) "Noninterest bearing accounts" means letters of credit, performance bonds or forfeiture bonds.

(156) "NRCS" means natural resources conservation service.

(157) "Nursing home" has the meaning given in s. 50.01(3), Stats.

(158) "One-time disposal" means the disposal of no more than 10,000 cubic yards of approved types of agricultural or demolition solid waste on a one-time basis over a project life of not more than 6 months. Examples are the disposal of concrete, brick, stone, asphalt, wood, trees, logs, brush and material from demolished buildings.

(159) "Open burning" has the meaning specified in s. 144.436 (1) (b), Stats.

(160) "Operating record" means the record maintained by the owner or operator of a municipal solid waste facility in accordance with Subtitle D, 40 CFR 258.29.

(161) "Operator" means the person who is responsible for the overall operation of a solid waste facility, or for part of a solid waste facility.

(162) "OSHA" means the occupational safety and health administration.

(163) "Owner" means the person who owns a solid waste facility, or part of a solid waste facility.

(164) "Paint filter liquids test" means the test used for determining whether a waste contains free liquids as defined by Method 9095 (Paint Filter Liquids

Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

Note: Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state, and the revisor of statutes. Copies may be obtained from the superintendent of documents, U.S. government printing office (GPO), Washington, D.C. 20401.

(165) "PAL" means preventive action limit.

(166) "Parent material" means the slightly altered or unweathered material from which the soil was formed.

(167) "Patient day" means a period of service between the census-taking hours on 2 successive calendar days, including in-patient census and out-patient surgical days.

(168) "Percent recovery" means the volume of soil or rock remaining in a sampling device relative to the total volume of soil or rock penetrated by the sampler.

(169) "Perched groundwater" means any waters of the state, as defined in s. 144.01 (19), Stats., occurring in an isolated, saturated zone located in the unsaturated zone.

(170) "Piezometer" means a well which is used to measure groundwater elevations and water quality beneath the water table. A piezometer is sealed within the aquifer and typically has a well screen of 2 to 5 feet.

(171) "Piezometer nest" means 2 or more piezometers within 10 feet of each other at the ground surface which are screened at different depths.

(172) "Piezometric surface" means a surface that represents the level to which water will rise in a piezometer.

(173) "Place of public gathering" means a structure which is open to the public.

(174) "Plan of operation" means a report submitted for a solid waste facility that describes its location, design, construction, documentation, monitoring, sanitation, operation, maintenance, closing and long-term care.

(175) "Point of standards application" has the meaning specified in s. NR 140.05(15).

(176) "Poor foundation conditions" means those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of a landfill.

(177) "Population equivalent" has the meaning specified in s. 144.436 (1) (c), Stats.

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

(179) "Private alcohol fuel production system" has the meaning specified in s. 144.438 (1) (c), Stats.

(180) "Private water supply well" is part of a private water supply system as defined in s. NR 812.07(78).

(181) "Processing facility" means a solid waste facility at which solid waste is baled, shredded, pulverized, composted, classified, separated, combusted or otherwise treated or altered by some means to facilitate further transfer, processing, utilization or disposal. Processing facilities do not include operations conducted by scrap metal, paper, fiber or plastic processors which are excluded from the definition of "solid waste facilities" in this section.

(182) "Proof of financial responsibility" means a bond, letter of credit, deposit, escrow account, trust account, net worth method, or other financial commitment made payable to or for the benefit of the department and approved by the department, ensuring that sufficient funds will be available to comply with the closure and long-term care requirements of chs. NR 500 to 536 and the approved plan of operation.

(183) "Public water supply well" is part of a public water supply system as defined in s. NR 811.02(21).

(184) "Public use airport" has the meaning in s. 114.002(18m), Stats.

(185) "Putrescible waste" means solid waste which contains organic matter capable of being decomposed by microorganisms and of such a character and proportion as to be capable of supporting a vector population or attracting or providing food for birds. It does not include high-volume industrial waste.

(186) "Quality control flag" means a letter or symbol attached to a reported result indicating failure to meet quality control criteria.

(187) "Radioactive material" has the meaning given in s. HSS 157.02(112).

(188) "Radioactive waste" means those wastes defined in federal code 10 CFR 60.2 and 61.3 and s. HSS 157.12.

(189) "Recharge zone" means an area in which there are downward components of hydraulic head in the aquifer.

(190) "Recyclable materials" means the items listed in s. 159.07(1m) to (4), Stats.

(191) "Recycling" has the meaning specified in s. 144.44 (7) (a) 2., Stats.

(192) "Recycling facility" means a facility where waste is recycled and may include a facility where waste has been generated.

(193) "Refuse" has the meaning specified in s. 144.43 (4), Stats.

(194) "Registered professional engineer" means a professional engineer registered with the Wisconsin examining board of architects, professional geologists, engineers, designers and land surveyors.

(195) "Registered professional geologist" means a professional geologist registered with the Wisconsin examining board of architects, professional geologists, engineers, designers and land surveyors.

(196) "Remedial action options report" has the meaning specified in s. NR 700.03(49).

Note: Section NR 700.03(49) defines "remedial action options report" to mean "a report which identifies and evaluates various remedial options with the goal of selecting an option in compliance with the requirements of s. NR 722.11.

(197) "Representative sample" means any sample of a universe or whole, such as groundwater or soils, which reliably exhibits the average properties of the universe or whole.

(198) "Residue produced by burning municipal solid waste" means the residue produced in a municipal solid waste combustor designed and operated for controlled burning of solid wastes primarily to achieve volume and weight reduction or to change waste characteristics. This includes facilities such as boilers which also capture energy in the form of steam, electricity, heat, gas, oil or char from the burning of waste. Residue produced by burning municipal solid waste includes, but is not limited to, slag, ash, fly ash, reacted and unreacted scrubber lime, and soot. Residue produced by burning municipal solid waste does not include bypass waste which is rejected prior to burning.

(199) "Rock" means lithified earth material as defined in sub. (130).

(200) "RQD" means the rock quality designation calculated from a rock core collected from a boring.

Note: RQD is the ratio of the length of a rock core, adding only the intact pieces of core recovered greater than 10 centimeters long, to the total length cored. RQD ranges from 0 to 100 percent and should only be applied to cores greater than 5.4 centimeters in diameter.

(201) "Run-off" means any rainwater, leachate or other liquid that drains over land, from any part of a solid waste facility.

(202) "Run-on" means any rainwater, leachate, or other liquid that drains over land onto any part of a solid waste facility.

(203) "Salvageable material" means junk cars, machinery or equipment, scrap metal or other junk or scrap materials which are of further usefulness mainly as a raw material for reprocessing, or as imperfect stock from which replacement or spare parts can be extracted.

(204) "Sampling period" means the month in which a sample is collected.

(205) "Saturated zone" means that part of the earth's crust in which all voids are filled with water excluding the capillary zone.

(206) "Seasonal high groundwater" means the set of groundwater level readings taken during which the highest water level occur in the majority of the groundwater wells within 300 feet of the proposed limits of filling".

(207) "Seasonal population" means the seasonal transient population in addition to the year round population.

(208) "Seismic impact zone" means an area with a 10% or greater probability that the maximum horizontal acceleration in lithified earth material, expressed

as a percentage of the earth's gravitational pull, will exceed 0.10g in 250 years.

(209) "Sharps" means medical equipment or clinical laboratory articles that may cause punctures or cuts. Sharps include, but are not limited to, contaminated, unused and disinfected items listed in s. NR 526.05(1)(a).

(210) "Site investigation report" means a report prepared in accordance with s. NR 716.15.

(211) "Site investigation work plan" means a work plan prepared in accordance with s. NR 716.09.

(212) "Sludge" means any solid, semi-solid or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant or air pollution control facility.

(213) "Small size construction and demolition waste landfill" means a landfill with a design capacity of 50,000 cubic yards or less and used for the disposal of only construction and demolition wastes.

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

(215) "Solid waste" has the meaning specified in s. 144.01 (15), Stats.

(216) "Solid waste disposal" has the meaning specified in s. 144.43 (4r), Stats.

(217) "Solid waste facility" has the meaning specified in s. 144.43 (5), Stats.

(218) "Solid waste storage" has the meaning specified in s. 144.43 (7g), Stats.

(219) "Solid waste treatment" has the meaning specified in s. 144.43 (7r), Stats.

(220) "Specific conductance" means the measurement of a water's ability to transmit an electrical current in micromhos/cm corrected to 25°C.

(221) "Stabilization of waste" means any chemical, physical or thermal treatment of a waste, either alone or in combination with biological processes, which results in a significant reduction of pathogenic organisms including viruses.

(222) "Stabilization of a land disposal facility" means the process of waste settlement and associated land surface maintenance to insure that the majority of settlement has occurred, that pockets or depressions caused by settlement have been refilled or regraded, and that the final land surface contours represent a stable condition for closure and facility maintenance purposes.

(223) "Sterilization" means a process by which all forms of microbial life, including spores, viruses and fungi are destroyed.

(224) "Storage facility" means a solid waste facility for the storage of solid waste, on a temporary basis in such a manner as not to constitute ultimate disposal of solid waste.

(225) "Structural components" means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the landfill that is necessary for protection of human health, welfare and the environment.

(226) "Sub-base grade" means the elevation of the facility or portion of the facility which has been excavated to its lowest level prior to the placement of any liner system.

(227) "Sub-soil horizon" means the soil horizon adjacent to and usually directly below the topsoil.

(228) "Subtitle D" means the United States Resource Conservation and Recovery Act (RCRA) Subtitle D solid waste disposal facility criteria as set forth in 40 CFR parts 257 and 258.

(229) "Subtitle D well" means a designated well installed at a landfill that accepts municipal solid waste and whose location and depth have been approved by the department specifically for monitoring purposes under Subtitle D of RCRA, 40 CFR parts 257 and 258.

(230) "Surface impoundment facility" means a storage or land disposal facility with a natural topographic depression, artificial excavation or dike arrangement which is used for storage or disposal of waste fluids, semi-solids or wastes containing free liquids.

(231) "SW-846" means the document entitled "Test Methods for Evaluating Solid Waste," November, 1986, including December 1987 and November 1990 updates, and any subsequent updates published by the U.S. EPA.

(232) "Tank" means a stationary device not including manholes, designed to contain an accumulation of leachate or other waste which is constructed primarily of nonearthen materials, such as wood, concrete, steel or plastic, which provide structural support.

(233) "25-year, 24-hour storm" means a storm of 24-hour duration with a probable recurrence interval of once in 25 years as determined under s. NR 205.05.

(234) "Termination" has the meaning specified in s. 144.43 (8), Stats.

(235) "Top of the bedrock surface" means the top of uppermost rock formation.

Note: The presence of bedrock shall be indicated when a majority of the drill cuttings or excavated material consist of either angular rock fragments, as in the case of crystalline bedrock, or rock fragments composed of individual grains or rock particles that are cemented together to form an aggregate, as opposed to single sediment particles, such as sand.

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

(237) "Total suspended particulates" means particulate matter as measured by the method described in Appendix B of 40 CFR part 50.

(238) "Transfer facility" means a solid waste facility at which transferring of solid waste from one vehicle or container to another, generally of larger capacity, occurs prior to transporting to the point of processing or disposal.

(239) "Transportation service" means an operation which transports vehicles or containers or both vehicles or other means of conveying solid waste from the primary source of collection and includes all activities up to such time as the waste is delivered to a facility for transfer, processing, treatment or disposal.

(240) "Treatment area" has the meaning given in s. 159.07(7)(c)1.e., Stats.

(241) "Trip blank" has the meaning specified in s. NR 149.03(32).

Note: Section NR 149.03(32) defines "trip blank" to mean "a sample of reagent grade water which is used to determine possible contamination of sample bottles from volatile organic chemicals while in transit to and from the laboratory".

(242) "Ultra low-level radioactive waste" means a waste generated at a wastewater or water treatment facility treating groundwater containing radium.

(243) "Uniformity coefficient" means the number resulting from dividing the grain size diameter in millimeters at the point where 60% of the material is finer by weight by the grain size diameter in millimeters at the point where 10% of the material is finer by weight.

(244) "Unsaturated zone" means the zone between the land surface and the water table in which the pore spaces contain water at less than atmospheric pressure, as well as air and other gases.

(245) "Unsaturated zone monitoring system" means a system used to measure soil moisture quantity or quality in the unsaturated zone beneath a regulated facility.

(246) "Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terranes.

(247) "USCS" means the unified soil classification system.

(248) "USDA" means the United States department of agriculture.

(249) "U.S. government securities" means treasury bills, treasury bonds, treasury certificates, treasury notes and treasury stocks guaranteed by the federal government.

(250) "USGS" means the United States geological survey.

(251) "UW" means the university of Wisconsin.

(252) "U.W.-Extension" means the university of Wisconsin extension.

(253) "Vegetable food waste" means raw or cooked waste vegetable material from residences, cafeterias, restaurants and food processors. It also includes food containers which are composed entirely of readily biodegradable materials, such as waxed or unwaxed paper products or corn starch, if the containers have been contaminated with vegetable food by virtue of use. It does not include food containers composed of materials which are not readily biodegradable, such as metal, glass or petroleum derived plastic used in container coatings, layers, or other components.

(254) "VOC" means volatile organic compounds.

(255) "Water table" means the upper surface of the saturated zone where the hydrostatic pressure is equal to atmospheric pressure.

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

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

(258) "Wetlands" means those areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation, and which have soils indicative of wet conditions.

(259) "WGNHS" means the Wisconsin geologic and natural history survey.

(260) "Woodburning facility" means a solid waste facility at which open burning of dry unpainted untreated wood, stumps, trees or other woody materials is performed. This term does not include air curtain destructors, incinerators, or municipal solid waste combustors.

(261) "WPDES permit" means a Wisconsin pollution discharge elimination system permit issued by the department under ch. 147, Stats., for the discharge of pollutants.

(262) "Yard waste" has the meaning specified in s. 159.01(17), Stats.

Note: Section 159.01(17) defines "yard waste" to mean "leaves, grass clippings, yard and garden debris and brush, including clean woody vegetation material no greater than 6 inches in diameter. This term does not include stumps, roots or shrubs with intact root balls".

(263) "Zone-of-saturation landfill" means a landfill where the base grade is located below the water table in a fine-grained soil environment and is designed and operated to maintain inward groundwater gradients to the extent possible.

(264) "Zoonotic infectious agent" means an infectious agent which can be transmitted from an animal to a human. Zoonotic infectious agents include Bacillus anthracis (anthrax), Brucella abortus (brucellosis), Chlamydia psittaci (psittacosis), Coxiella burnetii (Q fever), Lyssa virus (rabies), Mycobacterium bovis and Mycobacterium tuberculosis.

SECTION 21. NR 500.04 is amended to read:

NR 500.04 (title) INITIAL SITE INSPECTION. Any person intending to establish a new solid waste ~~disposal~~ facility or expand an existing solid waste ~~disposal~~ facility shall contact the department's district or area office as appropriate to arrange for an initial site inspection in accordance with ch. NR 509 for the purpose of evaluating compliance with the ~~location~~ applicable locational criteria and performance standards of ch. NR 502 and s. NR 504.04. This inspection shall be completed prior to submittal of an initial site report or a ~~feasibility~~ plan of operation report.

SECTION 22. NR 500.05(intro) is amended to read:

NR 500.05(intro) Unless otherwise specified, all submittals for review and approval of any initial site report, feasibility report, plan of operation, ~~infield conditions report~~ site investigation report, remedial action options report, construction documentation report or closure plan shall include the following:

SECTION 23. NR 500.05(1) is amended to read:

NR 500.05(1) The appropriate review fee specified in s. NR 520.04 ~~in check or money order payable to the department. The fee shall be sent to the department's district or area office as appropriate.~~ 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.

SECTION 24. NR 500.05(3) is amended to read:

NR 500.05(3) Unless otherwise specified, 5 copies of the plan or report prepared pursuant to the appropriate section of chs. NR 500 to ~~522~~ 536. Two copies shall be submitted to the department's field office responsible for the area in which the facility is located and 3 copies shall be submitted to the bureau of solid waste management in Madison.

SECTION 25. NR 500.05(4) is amended to read:

NR 500.05(4)(a) The report and plan sheets shall be under the seal of a registered professional engineer. In addition, the following certification shall be included:

"I, _____, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 536, Wis. Adm. Code."

(b) Initial site reports, feasibility reports, plans of operation, ~~infield conditions~~ site investigation, remedial action options reports and any other

reports where interpretation of geology or hydrogeology is necessary shall be ~~signed by a hydrogeologist.~~ under the seal of a registered professional geologist. In addition, the following certification shall be included:

"I, _____, hereby certify that I am a registered professional geologist in the State of Wisconsin, registered in accordance with the requirements of ch. A-E10, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 500 to 536, Wis. Adm. Code."

SECTION 26. NR 500.05(6)(h) is amended to read:

NR 500.05(6)(h) Show original topography and the grid system on plan sheets showing construction, operation or closure topography. For complex plans, existing conditions within the landfill area may be shown by lighter lines or may be eliminated.

SECTION 27. NR 500.06(1)(title) and (intro) are amended to read:

NR 500.06(1)(title) LICENSE FEE. The appropriate fee as specified in s. NR 520.04 in check or money order payable to the department. The fee shall be sent to the department's district or area office as appropriate. ~~Plan review~~ License fees are not transferable, proratable or refundable.

SECTION 28. NR 500.07 is amended to read:

NR 500.07 REVIEW TIMES. Except as otherwise provided in chs. NR 500 to ~~522~~ 536, the department shall review and approve, deny or deem incomplete requests for plan approvals or exemptions within 65 business days after receiving the request. For the purposes of determining department compliance with review times specified in chs. NR 500 to ~~522~~ 536 and ch. 144, Stats., the review time starts when the appropriate copies and review fee are received.

SECTION 29. NR 500.08(1)(intro) is amended to read:

NR 500.08(1)(intro) The following facilities are exempt from all requirements of chs. NR 500 to ~~522~~ 536:

SECTION 30. NR 500.08(2) is amended to read:

NR 500.08(2) The following facilities ~~must~~ shall be established in conformance with the locational requirements of s. NR 504.04(3) (c) and (4) (a) to ~~(e)~~ (f) and ~~must~~ shall be operated and maintained in a nuisance-free and aesthetic manner but are exempt from licensing and the requirements of chs. NR 500 to ~~522~~ 536:

SECTION 31. NR 500.08(2)(d), (e), and (f) are created to read:

NR 500.08(2)(d) Facilities where railroad ties or utility poles are used as structural timbers for landscaping purposes in accordance with generally accepted practices.

(e) Facilities where untreated, unpainted wood wastes including wood chips, bark, and sawdust are handled and stored properly and used for landscaping or trail surface course purposes in accordance with generally accepted practices.

(f) Facilities where glass is processed or used as an aggregate replacement in asphalt pavement and subbase material under roadways subject to the following:

1. Glass may not be used in areas where the glass will be exposed and may pose a safety threat or in areas that will be frequently disturbed.

2. The amount of contaminants present with the glass such as labels, caps and metal rings shall be minimized to the extent necessary to prevent interference with the performance of the asphalt or roadbed aggregate. Asphalt and roadbed aggregate containing glass shall be designed and used in accordance with generally accepted engineering practice. The glass shall have sufficient properties to perform the function of the aggregates it replaces. The use of glass particles greater than ½ inch in size requires written department approval.

3. Glass shall be collected and stored in a nuisance free manner. Glass stockpiles shall have controlled access to prevent the general public from coming in contact with the glass piles. The number of stockpiles shall be kept to a minimum and may not be spread over a large area. Stockpiles shall be placed on a hard, all weather surface such as asphalt or concrete.

SECTION 32. NR 500.08(3)(intro) is amended to read:

NR 500.08(3)(intro) The following facilities are exempt from the licensing and plan review requirements of chs. NR 500 to ~~522~~ 536 but ~~must~~ shall be developed in accordance with the following requirements:

SECTION 33. NR 500.08(3)(a) is repealed.

SECTION 34. NR 500.08(3)(b) is renumbered NR 500.08(3)(a).

SECTION 35. NR 500.08(3)(b) is created to read:

NR 500.08(3)(b) Facilities for the disposal of non-hazardous dredged material from rivers not listed in par. (a) provided the facility complies with the performance standards specified in s. NR 504.04(4).

SECTION 36. NR 500.08(4) is amended to read:

NR 500.08(4) Exemptions from the requirements of chs. NR 500 to ~~522~~ 536 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 which demonstrates that the proposal will not cause environmental pollution as defined in s. 144.01 (3), 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 which may be appropriate. The department shall review and make a written determination on the exemption request within 65 business 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.

SECTION 37. NR 500.08(5) is amended to read:

NR 500.08(5)(a) The department may grant exemptions from the requirements of ss. 144.43 to 144.47, Stats., for the purpose of allowing or encouraging the recycling of solid wastes. Any exemptions granted under this section shall be issued in writing in accordance with the requirements of s. 144.44(7)(b), (c), (f) and (g), Stats.

SECTION 38. NR 500.08(5)(b) and (c) are created to read:

NR 500.08(5)(b) Facilities utilizing coal combustion flyash that conforms to ASTM-C618 Class F and C specifications and which is to be beneficially reused by incorporation into concrete or asphalt and which are operated in a nuisance free manner are exempt from the requirements of chs. NR 500 to 536.

Note: ASTM-C618 is the American Society for Testing and Materials "Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete." Copies of this test procedure can be obtained from the american society for testing and materials (ASTM), 1916 race street, Philadelphia, PA 19103-1187, (215) 299-5400. Copies of these test methods are also available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(c) Facilities where wood ash is stored, handled, transported or landspread provided either of the following is met:

1. Wood ash is derived from the combustion of untreated wood with no additives, preservatives or other alterations other than kiln drying from generators who produce 10 dry tons or less of ash per year and is managed in a nuisance free manner.
2. Wood ash is managed in accordance with s. NR 518.04(6).

SECTION 39. NR 500.09 is amended to read:

NR 500.09 The department may require as a condition of a grant of exemption, the approval of a feasibility report, plan of operation, groundwater monitoring plan, closure plan, ~~in-field conditions report~~ site investigation report and remedial action options report or a modification to any approval that critical construction steps of a facility, as specified in the approval, be inspected by

the department. The applicant shall pay an inspection fee as specified in s. NR 520.04(5).

SECTION 40. NR 500.10(intro) is amended to read:

NR 500.10(intro) The department may grant exemptions in writing from any of the requirements of chs. NR 500 to ~~520~~ 536 for municipal solid waste combustors and any other solid waste facilities which manage the residue from municipal solid waste combustors. The department also may issue an approval for solid waste which has been processed into a fuel for a municipal solid waste combustor which exempts the combustor and any facility which manages the combustor residue from regulation under chs. NR 500 to ~~520~~ 536. Such exemptions may be granted under this section. The department shall consider the following criteria in determining whether an exemption shall be granted under this section:

SECTION 41. NR 502(title) is amended to read:

NR 502(title) SOLID WASTE STORAGE, TRANSPORTATION, TRANSFER, INCINERATION, AIR CURTAIN DESTRUCTORS, PROCESSING, WOODBURNING, ~~ONE-TIME DISPOSAL, SMALL DEMOLITION FACILITIES,~~ COMPOSTING AND MUNICIPAL SOLID WASTE COMBUSTORS

SECTION 42. NR 502.01(intro) is amended to read:

NR 502.01(intro) The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally accepted solid waste management procedures are practiced in ~~Wisconsin~~ this state and to outline the requirements regarding licensing and operational requirements for solid waste storage, transportation, transfer, incinerators, air curtain destructors, processing, woodburning, ~~one-time disposal, small demolition facilities~~ composting and municipal solid waste combustors. This chapter is adopted under ss. 144.43 to 144.47, and 227.11, Stats.

SECTION 43. NR 502.02(1) is amended to read:

NR 502.02(1) Except as otherwise provided, this chapter governs all solid waste storage, transportation, transfer, incinerators, air curtain destructors, processing, ~~wood-burning~~, ~~one-time disposal, small demolition facilities~~ woodburning, composting and municipal solid waste combustors as defined in s. 144.43 (5), Stats., except hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690, and metallic mining operations as defined in s. 144.81 (5), Stats., and regulated under ch. NR 182.

SECTION 44. NR 502.02(3) is created to read:

NR 502.02(3) This chapter does not apply to the design, construction or operation of facilities used solely for the treatment of municipal wastewater sludge as defined and regulated under ch. NR 204.

SECTION 45. NR 502.04 is repealed and recreated to read:

NR 502.04 GENERAL REQUIREMENTS. All facilities regulated under this chapter shall comply with the following requirements:

(1) PERFORMANCE STANDARDS. (a) Unless an exemption is granted by the department under par. (b), no person may establish, construct, operate, maintain or permit the use of property for any facility regulated under this chapter, or any non-commercial soil borrow source designated to be used in the construction of a specific facility regulated under this chapter, within an area where there is reasonable probability that the facility will cause any of the following:

1. A detrimental effect on any surface water.
2. A significant adverse impact on wetlands as provided in ch. NR 103.
3. A detrimental effect on groundwater quality or will cause or exacerbate an attainment or exceedance of any preventative action limit or enforcement standard at a point of standards application as defined in ch. NR 140. For the purposes of design, the point of standards application is defined by s. NR 140.22(1).
4. A significant adverse impact on critical habitat areas.
5. The migration and concentration of explosive gases in any facility structures, excluding any leachate collection system or gas control or recovery system components or in the soils or air at or beyond the facility property boundary in excess of 25% of the lower explosive limit for such gases at any time.
6. The emission of any hazardous air contaminant exceeding the limitations for those substances contained in s. NR 445.04 or 445.05.

(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 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 standards in ch. NR 103. Exemptions from compliance with par. (a) 1. may not be granted.

(2) INITIAL SITE INSPECTION. (a) Any person intending to establish or expand a solid waste facility listed in subds. 1. to 8. which is subject to locational criteria under this chapter or a soil borrow source listed in subd. 9. shall submit a written request to the department for an initial site inspection for the purpose of evaluating compliance with the performance standards listed in sub. (1) and the applicable locational criteria contained in this chapter:

1. Noncontainerized storage facilities.
2. Transfer facilities.
3. Processing facilities.
4. Incinerator facilities.
5. Air curtain destructor facilities.
6. Woodburning facilities.
7. Composting facilities.
8. Municipal solid waste combustor facilities.
9. Non-commercial soil borrow source designated to be used in the construction of a specific solid waste facility listed in subds. 1. to 8.

(b) The written request for initial site inspection shall comply with s. NR 500.05 (5) to (8) and shall contain a cover letter identifying all of the following:

1. The applicant and authorized contact.
2. Type of facility and operation proposed.
3. Property ownership.
4. Location by quarter - quarter section.
5. Present land use.
6. All potential conflicts with the performance standards listed in sub. (1).

(c) The written request for initial site inspection for solid waste facilities listed par. (a) 1. to 8., shall contain all of the following additional information:

1. A letter from the department's bureau of endangered resources identifying the presence of any critical habitat areas and state or local natural areas within one mile of the proposed facility in accordance with ch. NR 29.
2. A letter from the Wisconsin state historical society identifying the presence of any historical, scientific or archaeological areas within the vicinity of the proposed solid waste facility in accordance with s. 44.40, Stats.
3. An enlarged 7.5 minute USGS map or other base map having a minimum scale of 1" = 500 feet. The map scale and contour intervals shall be revised as necessary to sufficiently show relief, surface waters, floodplains, existing land use conditions and all water supply wells and residences located within one mile of the property boundaries of the proposed facility.

Note: One copy of the information required by pars. (b) and (c) shall be submitted to the department's field office responsible for the area in which the facility is proposed to be located, and one copy shall be submitted to the department's solid waste management section in Madison.

(d) The department shall conduct an initial site inspection within 22 business days of receipt of a written request which complies with the requirements of this subsection. Depending on the season, follow up inspections may be necessary to identify any obscured features of the proposed property such as wetlands. Within 22 business days of completing the inspection, the department shall render a preliminary opinion regarding the suitability of the site location and identify any additional studies or information that is to be submitted to determine if a proposed solid waste facility or soil borrow source complies with the performance standards listed in sub. (1) and the applicable locational criteria contained in this chapter. A favorable opinion from the department under this paragraph does not guarantee that performance standards or locational criteria will be met.

(3) CLOSURE. Except as otherwise specified in this chapter or in a department issued approval, the owner or operator of any facility regulated under this chapter, or any person who permits the use of property for such purposes, shall at a minimum complete all of the following:

(a) Within 5 calendar days after ceasing to accept waste at the facility, remove all putrescible waste and containerize, properly utilize or dispose of all other waste.

(b) Within 60 days after ceasing to accept waste at the facility, remove all waste.

(c) Unless otherwise specified in a department issued approval, the following minimum requirements shall also be met by the owner or operator of a facility for which a plan of operation is required under this chapter:

1. At least 60 days prior to ceasing to accept waste at the facility for an extended period, the department shall be notified in writing and a sign shall be posted in a prominent location notifying users of the date on which the facility will cease to accept waste. In the case of ceasing to accept waste for an extended period due to unplanned and unforeseeable circumstances, such as fire or equipment failure, department notification and sign posting shall be completed as soon as practical. Alternatives to posting a sign may be implemented with department concurrence for facilities which are not open to the general public.

2. Within 60 days of ceasing to accept waste, the facility shall be closed in accordance with the approved plan of operation.

Note: Fees for plan review, license and other applicable items are charged in accordance with ch. NR 520. Licenses for facilities regulated under this chapter are transferrable.

(4) ENVIRONMENTAL REVIEW. The department may require an applicant for an initial license or for approval of expansion of an existing solid waste facility listed in the following pars. (a) to (f) to submit information with the plan of operation report as specified by the department to determine the need for an environmental impact report or environmental impact statement:

(a) Noncontainerized storage facilities.

(b) Transfer facilities.

(c) Processing facilities.

(d) Incinerator facilities.

(e) Composting facilities.

(f) Municipal solid waste combustor facilities.

(5) ENVIRONMENTAL MONITORING. The department may require the owner or operator of any facility for which a plan is required under this chapter, or any person who permits the use of property for such purposes, to conduct environmental monitoring in accordance with ch. NR 507 and plans approved by the department, including surface water, groundwater, unsaturated zone or gas monitoring. The department may require monitoring after closure of the facility.

(6) FINANCIAL RESPONSIBILITY. The department may require the owner or operator of any facility for which a plan is required under this chapter to provide proof of financial responsibility for the cost of closure of the facility. The department may require the owner or operator to submit closure cost estimates for removal, transport and ultimate disposal of the wastes. If proof of financial responsibility is required by the department, it shall be submitted prior to licensing of the facility, or as otherwise specified by the department.

SECTION 46. NR 502.05 is repealed and recreated to read:

NR 502.05 STORAGE FACILITIES. (1) GENERAL. (a) Unless exempt under sub. (2) or (3), owners and operators of solid waste storage facilities shall comply with all of the following:

1. The requirements specified under s. NR 502.04.
2. Obtain approval of a plan of operation as specified in sub. (8) and an operating license from the department.
3. Store all waste in containers in compliance with sub. (5) unless the waste volume precludes practical containerized storage in which case the storage shall comply with the noncontainerized storage requirements in sub. (6).

(b) Unless exempt under sub. (2) or (3), all new or expanded solid waste storage facilities shall demonstrate compliance with the applicable locational criteria listed in sub. (4).

(c) No person may operate or maintain a storage facility for municipal solid waste combustor residue except in compliance with sub. (7).

(d) No person may operate or maintain a storage facility for infectious waste unless the person complies with s. NR 526.09.

(2) EXEMPTIONS FOR HOUSEHOLD WASTE. Containers for household wastes, serving a single household and located on the property where the waste is generated are exempt from all requirements of this chapter.

(3) OTHER EXEMPTIONS. The following storage facilities are exempt from all requirements of this section, except as specified.

(a) Storage facilities utilizing containers such as lugger boxes or rolloffs for solid waste storage serving apartments, commercial establishments, business establishments and industries which are located on the premises served, provided the facility complies with the general requirements listed under s. NR 502.04 and the operational requirements listed under sub. (5).

(b) Pit silos used for the storage of by-products from fruit, vegetable or grain processing operations where the by-products are to be used for animal feed, provided the facility is in compliance with applicable portions of ch. NR 213.

(c) Facilities for high volume industrial waste or wood residue where the waste is stored at the point of generation for less than 72 hours prior to being transported for disposal or beneficial reuse and the facility complies with the general requirements listed under s. NR 502.04 and is operated and maintained in an environmentally sound and nuisance-free manner.

(d) On site storage facilities at a solid waste processing facility, solid waste incinerator facility, or municipal solid waste combustor facility, provided the facility is in compliance with applicable portions of s. NR 502.08, 502.09 or 502.13.

(e) Facilities that store only used oil which is managed in compliance with ch. NR 590.

(f) Infectious waste storage facilities which are exempt from licensing under s. NR 526.09.

(g) Materials recovery facilities as defined in s. NR 544.03 (12).

(h) Contaminated soil storage facilities in compliance with ch. NR 718.

(i) Noncontainerized storage facilities which meet all of the following criteria are exempt from all other requirements of this chapter:

1. The facility meets the performance standards and closure requirements specified in s. NR 502.04 (1) and (3) (a) and (b), and complies with the operational requirements for noncontainerized storage facilities listed under sub. (6).
2. The solid waste does not include putrescible waste such as garbage, municipal refuse or residue produced by the burning of municipal solid waste.
3. The waste is free of noxious odors and not readily transported by wind or water unless it is stored to prevent such transport.
4. The facility exists less than 9 months from the time of initial storage to the removal of all waste.
5. The volume of waste stored at the facility does not exceed 5,000 cubic yards at any time.
6. The combined total volume of waste stored at the facility over the allowable 9 month period does not exceed 10,000 cubic yards.
7. Waste storage does not occur within a floodplain, or within 100 feet of any public or private water supply well, navigable lake, pond, flowage, river or stream, or within 20 feet of the facility property boundary.

(4) LOCATIONAL CRITERIA FOR STORAGE FACILITIES. (a) Except as otherwise specified in this section, new or expanded solid waste storage facilities may not be located in any of the following areas, unless an exemption is granted under par. (b):

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.
3. Within 250 feet of any navigable lake, pond or flowage.
4. Within 250 feet of any navigable river or stream.
5. Within 250 feet of land owned by a person other than the owner or operator of the facility, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the property boundary.
6. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.
7. Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created. This criterion is applicable only when the facility will be used for handling putrescible waste.

(b) The locational criteria listed under par. (a) 2. to 7. do not apply to containerized waste storage or storage within an enclosed building. However, the department may require containerized and enclosed solid waste storage facilities to meet specified locational criteria in par. (a) if there is significant potential for the facility to cause environmental pollution as

defined in s. 144.01 (3), Stats., nuisance conditions or bird hazard to aircraft. The department may grant exemptions from the requirements of par. (a) 2. to 7. only upon demonstration by the applicant of circumstances which warrant the exemption. Exemptions from compliance with par. (a) 1. may not be granted.

(5) OPERATIONAL REQUIREMENTS FOR CONTAINERIZED STORAGE FACILITIES. No person may operate or maintain a containerized storage facility except in conformance with the following minimum operational requirements:

(a) Storage containers shall be durable, rust resistant, nonabsorbent, leak-proof, easy to clean and able to effectively contain the stored waste. If garbage or similar putrescible wastes are stored, the containers shall have close-fitting, fly-tight covers and be constructed of light-weight durable material.

(b) Covers and containers shall be maintained in good condition.

(c) Containers handling municipal solid waste shall be removed and emptied at least once per week, or more often if conditions warrant. Containers handling nonputrescible industrial waste shall be removed and emptied as necessary, but at least once every 90 days.

(d) All weather access shall be provided and maintained.

(e) Effective means shall be provided to control flies, rodents and other vectors.

(f) Objects too large for the containers shall be stored in a nuisance-free manner.

(g) Periodic clean-up and maintenance of the storage container and surrounding area shall be conducted to keep it aesthetically pleasing and nuisance-free. This maintenance shall be the responsibility of the property owner where the containers are located as well as the owner of the containers.

(h) Gates, fencing and an attendant or other appropriate access restrictions shall be provided, as specified by the department, to prevent nuisance conditions or if mechanical compaction equipment is part of the facility.

(i) Disposal of solid waste is not allowed at a storage facility.

(j) Solid waste may not be burned.

(k) The facility shall be operated and maintained in a sanitary, nuisance-free manner so as to protect the environment and the public health.

(l) Adequate storm water drainage shall be maintained on and around the facility.

(6) OPERATIONAL REQUIREMENTS FOR NONCONTAINERIZED STORAGE FACILITIES. No person may operate or maintain a noncontainerized storage facility except in conformance with an approved plan of operation and the following minimum operational requirements:

(a) All weather access shall be provided and maintained.

(b) Effective measures shall be taken to control flies, rodents and other vectors.

(c) Periodic maintenance or clean-up of the facility shall be conducted to keep it aesthetically pleasing and nuisance-free.

(d) Gates, fencing and an attendant shall be provided as specified by the department.

(e) Solid waste shall be disposed of at a licensed facility approved by the department.

(f) Solid waste may not be burned.

(g) The facility shall be operated and maintained in a sanitary, nuisance-free manner so as to protect the environment and the public health.

(h) Adequate drainage shall be maintained on and around the facility.

(7) OPERATIONAL REQUIREMENTS FOR MUNICIPAL SOLID WASTE COMBUSTOR RESIDUE STORAGE FACILITIES. Except for on site storage at a municipal solid waste combustor approved under s. NR 502.13, no person may maintain or operate a storage facility for residue produced by burning municipal solid waste unless the person has obtained an operating license under sub. (1), and written approval of a plan of operation under sub. (8), for the facility. Residue storage areas shall be designed, operated and maintained in compliance with the applicable operational requirements specified under sub. (5) or (6) and the following:

(a) The residue shall be wetted at all times during storage to prevent dust emissions. Alternative methods of dust control shall be approved by the department prior to implementation. Provisions shall be made to prevent the release of residue into the air in the residue handling areas.

(b) The storage area shall have an impervious surface on which the residue is stored and a collection system for any liquids coming into contact with the residue. All liquid that comes into contact with the residue shall be collected and treated at a wastewater treatment plant approved by the department.

(c) Access to the storage areas shall be restricted to authorized personnel only. Fencing or other means of access control acceptable to the department shall be maintained around the storage facility.

(8) PLAN OF OPERATION. No person may establish or construct a solid waste storage facility or expand an existing facility unless the person has obtained a plan of operation approval from the department. The plan of operation shall specify the intent and objectives of the proposal, indicate methods and procedures to minimize adverse environmental impacts, and provide a design which complies with the applicable operational requirements specified under subs. (5) to (7). Unless otherwise approved by the department in writing, the plan shall be submitted in accordance with s. NR 500.05 and shall contain, at a minimum, the following information:

(a) A legal description of the facility.

(b) The present ownership of the property.

(c) The proposed facility size, a description of the present land use of the facility and the area within ¼ mile of the facility.

(d) The area served, including population and major industries.

(e) The consistency of facility development with areawide solid waste plans and land use plans.

(f) The predominant types of vegetation and wildlife within the proposed facility boundaries.

(g) A complete materials balance for the storage facility, specifying amounts and characteristics of solid waste.

(h) The types of vehicles and access routes used to transport solid waste to and from the facility including the traffic flow patterns within the facility, and an estimate of the increased quantities of traffic on access routes to and from the facility.

(i) The estimated quantities and characteristics of wastes containing free liquids resulting from facility operations and methods of their storage and disposal.

(j) The persons responsible for facility construction and operation.

(k) Provisions for protection of groundwater and surface water during facility construction and operation.

(l) A discussion of possible operational hazards and necessary safety precautions.

(m) A discussion of design features and logic including the equipment capacity or size. Information shall be included to justify the size and configuration of the receiving area; methods of handling wastes containing free liquids resulting from operations such as floor drains, sewers and water treatment facilities; sizing of storm water drainage control structures; design life of any building and facility equipment; and methods of screening the facility from the surrounding area.

(n) An operations and maintenance manual which specifies the operating and maintenance procedures; operating personnel responsibilities; hours of operation; daily operating schedule; equipment maintenance schedules; methods of controlling explosions, dust, fire, odors and windblown materials; special waste handling procedures; methods of controlling access; daily cleanup procedures; person responsible for operation; facility licensee and owner; record keeping procedures; emergency procedures for handling of frozen conditions during cold weather; methods to prevent solid waste from burning; any additional procedures for the handling of the waste in the case of major facility breakdown; and any other pertinent information.

(9) ENGINEERING PLANS. The plan of operation shall include a set of engineering plans and maps which contain the following information unless an exemption is granted in writing by the department:

(a) An existing conditions map, which shows the entire facility and the area within ¼ mile. The minimum scale shall be 1" = 400'. This map shall include the proposed facility boundary, property lines, easements and right-of-way; building foundations, roads, utilities and other structures; topography, drainage swales, surface waters, wetlands, floodplains and similar drainage features; wooded areas; location of soil borings and test pits; features of historical and archaeological significance; and other features as appropriate.

(b) Proposed facility access roads and traffic patterns, buildings, scales, utility lines, drainage diversion, screening, means of access control, final topography, areas to be cleared of vegetation, and other design features. The extent of coverage and scale shall be the same as that for the existing conditions map.

(c) A proposed layout plan which shows the receiving, storage and loadout areas. The minimum scale shall be 1" = 20'. Plan details shall include conceptual designs for the receiving area configuration and traffic flow patterns, storage area and equipment configuration, loadout area and equipment configuration, and other design features.

(d) At least one cross section shall be drawn through the receiving, storage and loadout areas indicating existing topography, limits of excavation, proposed final grades and other pertinent design features. More cross sections may be necessary depending on the complexity of the facility design.

(10) CONSTRUCTION DOCUMENTATION REPORT. The department may require the applicant to submit a construction documentation report for any storage facility which is required to submit a plan of operation. When a documentation report is required, it shall be prepared in accordance with the approved plan of operation and s. NR 500.05. Operation of the facility may not commence until the construction documentation report is approved in writing by the department and a license is issued. The department may issue a license prior to facility construction or construction documentation approval.

SECTION 47. NR 502.06(title) is amended to read:

NR 502.06(title) COLLECTION AND TRANSPORTATION SERVICES.

SECTION 48. NR 502.06(1)(a) and (b) are repealed and recreated to read:

NR 502.06(1)(a) Owners and operators of solid waste collection and transportation services shall comply s. NR 502.04.

(b) Unless exempt under sub. (2), no person may operate or maintain a collection or transportation service unless the person has obtained an operating license from the department.

SECTION 49. A NOTE following NR 502.06(1)(c) is created to read:

Note: Services for collection and transportation of asbestos waste are required to meet the minimum requirements of the applicable air management rules in chs. NR 400 to 499.

SECTION 50. NR 502.06(2)(intro) is amended to read:

NR 502.06(2)(intro) The following collection or transportation services shall comply with the general requirements specified in s. NR 502.04, but are exempt from all other requirements of this ~~section~~ chapter:

SECTION 51. NR 502.06(2)(am) is amended to read:

NR 502.06(2)(am) Services for the collection and transportation of the materials listed in s. 159.07 (3) and (4), Stats., after the materials have been processed for reuse or recycling by conversion into a consumer product or a product which is used as a raw material in a commercial or industrial process~~, or which are not part of an approved effective recycling program~~.

SECTION 52. NR 502.06(2)(ar) is created to read:

NR 502.06(2)(ar) Services for the collection and transportation of the materials listed in s. 159.07(4), Stats., only from commercial, retail, industrial and governmental operations.

SECTION 53. NR 502.06(2)(i) is amended to read:

NR 502.06(2)(i) ~~Persons who transport~~ Services for the transportation of infectious waste or items mixed with infectious waste ~~and who comply~~ in compliance with s. NR 526.10.

SECTION 54. NR 502.06(2)(j) is created to read:

NR 502.06(2)(j) Services for the collection and transportation of contaminated soil in compliance with ch. NR 718.

SECTION 55. NR 502.06(3) and (4) are repealed.

SECTION 56. A NOTE following NR 502.06(6)(g) is repealed.

SECTION 57. NR 502.06(5) and (6) are renumbered to NR 502.06(3) and (4) and 502.06(3)(title),(a), and (4)(title) as renumbered is amended to read:

NR 502.06(3)(title) OPERATIONAL REQUIREMENTS FOR TRANSPORTATION OF RESIDUE PRODUCED BY BURNING MUNICIPAL SOLID WASTE. (a) ~~The~~ No person may operate or maintain a collection and transport service for the transportation of residue produced by burning municipal solid waste ~~shall be~~ except in accordance with the applicable ~~portions~~ provisions of this section~~.~~ , and the following special requirements:

NR 502.06(4)(title) GENERAL OPERATIONAL REQUIREMENTS.

SECTION 58. NR 502.06(4)(h) is created to read:

NR 502.06(4)(h) The owner or operator shall provide written notice of termination of service to the department at least 30 days prior to ceasing all transport services for an extended period. The owner or operator shall provide information to the department concerning service areas and disposal facilities used as specified in the license renewal application.

SECTION 59. NR 502.06(7) is repealed.

SECTION 60. NR 502.06(8) is renumbered to NR 502.06(5).

SECTION 61. NR 502.07(1) is repealed and recreated to read:

NR 502.07(1) GENERAL. (a) Unless exempt under sub. (2m), owners and operators of solid waste transfer facilities shall comply with the general requirements in s. NR 502.04.

(b) Unless exempt under sub. (2), (2f) or (2m), owners and operators of new or expanded solid waste transfer facilities shall demonstrate compliance with the locational criteria listed under sub. (3).

(c) Unless exempt under sub. (2), (2f) or (2m), no person may operate or maintain a solid waste transfer facility unless the person has received approval of a plan of operation as specified in sub. (4) and obtained an operating license from the department.

(d) No person may operate or maintain a transfer facility for infectious waste or items mixed with infectious waste unless the person complies with s. NR 526.09.

SECTION 62. NR 502.07(2)(intro.) is amended to read:

NR 502.07(2)(intro) Transfer facilities at which waste from individual users or from hand unloaded vehicles not exceeding one ton in capacity shall comply with the performance standards and closure requirements in s. NR 502.04(1) and (3) (a) and (b), but are exempt from ~~the plan approval~~ all other requirements of this chapter ~~and licensing but shall be~~ , provided the facility is operated and maintained in conformance with the following practices:

SECTION 63. NR 502.07(2f)(title) is created to read:

NR 502.07(2f) EXEMPT RECYCLING TRANSFER FACILITIES. Facilities only for the transfer of items listed in s. 159.07 (3) or (4), Stats., shall comply with the performance standards and closure requirements in s. NR 502.04 (1) and (3) (a) and (b), but are exempt from all requirements of this chapter.

SECTION 64. NR 502.07(2m) is amended to read:

NR 502.07(2m) Transfer facilities for only used oil which is managed in compliance with ch. NR 590 are exempt from ~~the plan approval and licensing~~ all requirements of this ~~chapter~~ section.

SECTION 65. NR 502.07(6) is repealed.

SECTION 66. NR 502.07(3), (4) and (5) are renumbered to NR 502.07(4), (5), and (6) and NR 502.07(4)(intro), (j), and (6) as renumbered are amended to read:

NR 502.07(4)(intro) No person may establish or construct a transfer ~~station~~ facility prior to obtaining approval in writing from the department of a plan of operation for the facility. The plan of operation shall specify the intent and objectives of the proposal ~~and~~ , indicate methods and procedures to minimize adverse environmental impacts and provide a design which complies with the operational requirements in sub. (7). Unless an exemption is granted by the department in writing, the plan shall be submitted in accordance with ~~s. NR 500.04~~ s. NR 500.05 and shall contain engineering plans specified under sub. (5) and a report containing, at a minimum the following information:

(j) The type and quantity of waste to be handled, and specific waste types which will not be accepted at the facility. The method for screening the incoming waste to eliminate unacceptable material such as asbestos, infectious waste, explosive wastes, hazardous waste or other materials from endangering the operators' safety shall be identified. ~~Transfer of infectious waste is regulated under s. NR 526.09.~~

(6) The department may require the applicant to submit a construction documentation report for any transfer facility required to submit a plan of operation. When a documentation report is required, it shall be prepared in accordance with the ~~department's~~ approved plan ~~approval~~ of operation and s. NR 500.05. Operation of the facility may not begin until the construction documentation report is approved in writing by the department and a license is issued. The department may issue a license prior to facility construction or construction documentation.

SECTION 67. NR 502.07(3) is created to read:

NR 502.07(3) LOCATIONAL CRITERIA. (a) Except as otherwise specified in this section, new or expanded solid waste transfer facilities may not be located in any of the following areas, unless an exemption is granted under par. (b):

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.
3. Within 250 feet of any navigable lake, pond or flowage.
4. Within 250 feet of any navigable river or stream.
5. Within 100 feet of land owned by a person other than the owner or operator of the facility, unless the waste handling operations are screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the property boundary.

6. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.

7. Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created. This criterion is applicable only when the facility will be used for handling putrescible waste.

(b) The locational criteria listed under par. (a) 2. to 7., do not apply to waste transfer activities located within an enclosed building. However, the department may require enclosed solid waste transfer facilities to meet specified locational criteria in par. (a) if there is significant potential for the facility to cause environmental pollution as defined in s. 144.01(3), Stats., nuisance conditions or bird hazard to aircraft. The department may grant exemptions from the requirements of par. (a) 2. to 7., only upon demonstration by the applicant of circumstances which warrant the exemption. Exemptions from compliance with par. (a) 1. may not be granted.

SECTION 68. NR 502.07(7)(title) and (intro) is amended to read:

NR 502.07(7)(title) OPERATIONAL REQUIREMENTS FOR TRANSFER FACILITIES.(intro) ~~No~~ Unless exempt under sub. (2), (2f) or (2m), no person may operate or maintain a transfer facility except in conformance with an approved plan of operation and the following ~~minimum~~ operational requirements:

SECTION 69. NR 502.07(7)(c) is repealed and recreated to read:

NR 502.07(7)(c) All wastewater shall be collected and treated at a wastewater treatment facility permitted to accept it.

SECTION 70. NR 502.07(7)(f) and (g) are amended to read:

NR 502.07(7)(f) There may be no storage of solid waste on the premises for a period greater than 24 hours except in conformance with s. NR 502.05 or unless the waste is contained in leak-proof vehicles or containers with impermeable tops used by a licensed collection and transportation service. Longer storage periods may be authorized by the department for certain industrial and commercial waste depending on the design of the facility.

(g) Unloading of solid waste ~~shall~~ may take place only within the enclosed structure and only in approved designated areas.

SECTION 71. NR 502.07(8) is repealed.

SECTION 72. NR 502.08 is repealed and recreated to read:

NR 502.08 SOLID WASTE PROCESSING FACILITIES. (1) GENERAL. (a) Unless exempt under sub. (2), no person may operate or maintain a solid waste processing facility unless the person complies with the general requirements in s. NR 502.04, and has obtained a plan of operation approval as specified in sub. (4) and an operating license from the department.

(b) Unless exempt under sub. (2), owners and operators of new or expanded solid waste processing facilities shall demonstrate compliance with the applicable locational criteria in sub. (3).

Note: Persons treating infectious waste are required to submit a plan of operation and obtain a license for operating a solid waste processing facility under this section and shall comply with s. NR 526.12.

(2) EXEMPTIONS. The following facilities are exempt from all requirements of this chapter, except as specified:

(a) Incinerators, air curtain destructors, woodburning facilities, composting facilities and municipal solid waste combustors regulated under ss. NR 502.09 to 502.13.

(b) Materials recovery facilities.

(c) Facilities that process only used oil which is managed in compliance with ch. NR 590.

(d) Facilities for processing contaminated soil in accordance with ch. NR 718.

(e) Infectious waste treatment facilities which are exempt from licensing under s. NR 526.12(2).

(f) Facilities for the processing of scrap iron, steel or nonferrous metal using large machines to produce a principal product of scrap metal for sale or use for remelting purposes and facilities which use large machines to sort, grade, compact, bale or process clean separate waste components consisting of waste paper, textiles, clean wood, glass, rubber, construction and demolition material, pavement or plastics, not mixed with each other or other solid waste, for sale or use for recycling purposes.

(g) Private alcohol fuel production systems provided the waste product is stored in an environmentally sound storage facility and disposed of using an environmentally safe landspreading technique and the disposal is confined to the property of the owner.

(h) Facilities where solid wastes are generated as part of a manufacturing or industrial process and the solid wastes are processed within a building on the same property where the waste is generated, provided the solid waste generator complies with the performance standards and closure requirements in s. NR 502.04 (1) and (3) (a) and (b).

(i) Except for those facilities which are otherwise exempt under this subsection, facilities where solid wastes are processed for reuse or recycling by being incorporated into a structural material such as concrete or asphalt or converted into a consumer product which is used as a raw material in a commercial or industrial process are exempt from licensing and all other

requirements of this chapter, provided the solid waste generator or processor obtains written approval from the department to use the waste for these purposes in accordance with the following:

1. Comply with the performance standards and closure requirements in s. NR 502.04(1) and (3) (a) and (b), and operate the facility in a nuisance-free and aesthetic manner.
2. Submit a process flow diagram and the necessary laboratory and field tests to show that the specific waste types to be used would not release quantities of contaminants into the environment such that a potential hazard to public health or the environment would be created.

(3) LOCATIONAL CRITERIA FOR NONEXEMPT PROCESSING. (a) Unless exempt under sub. (2), new or expanded processing facilities may not be located within any of the following areas, unless an exemption is granted under par. (b):

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.
3. Within 250 feet of any navigable lake, pond or flowage.
4. Within 250 feet of any navigable river or stream.
5. Within 250 feet of land owned by a person other than the owner or operator of the facility, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the property boundary.
6. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.
7. Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created. This criterion is applicable only when the facility will be used for handling putrescible waste.

(b) Processing facilities located within a building are not subject to par. (a) 2. to 7. However, the department may require containerized and enclosed solid waste processing facilities to meet specified locational criteria in par. (a) if there is significant potential for the facility to cause environmental pollution as defined in s. 144.01(3), Stats., nuisance conditions or bird hazard to aircraft. The department may grant exemptions from par. (a) 2. to 7., only upon demonstration by the applicant of circumstances which warrant the exemption. Exemption from compliance with par. (a) 1. may not be granted.

(4) PLAN OF OPERATION - NONEXEMPT PROCESSING FACILITIES. Unless exempt under sub. (2), no person may establish or construct a solid waste processing facility prior to obtaining approval in writing from the department of a plan of operation for the facility. Unless otherwise approved by the department in writing, the plan shall be submitted in accordance with s. NR 500.05, shall contain engineering plans specified under sub. (5), shall provide a design which complies with the operational requirements in sub. (6) and shall include a report containing, at a minimum, the following information:

(a) A legal description of the property and the facility boundaries.

(b) The present ownership of the proposed facility property.

(c) Land use within ¼ mile of the proposed facility. Particular note shall be made of parks, hospitals, nursing homes and areas of archaeological and historical significance.

(d) The proposed service area, including population and major industries.

(e) The consistency of facility development with county solid waste plans and land use plans.

(f) The predominant types of vegetation and wildlife within the proposed facility boundaries.

(g) The persons responsible for facility construction and operation.

(h) A timetable for facility construction, shakedown and operation, and an operating schedule for the facility. All facilities operated more than 4 hours per day shall be equipped with a toilet and wash basin or have those facilities available within a reasonable distance.

(i) A complete materials balance for the facility, specifying amounts and characteristics of solid waste received and amounts and characteristics of products and wastes generated by the facility.

(j) The estimated quantities and characteristics of wastes containing free liquids resulting from facility operation and methods of their treatment or disposal. All wastewater resulting from the process shall be discharged into a sanitary sewer or other system approved by the department.

(k) The names and locations of all solid waste disposal facilities at which solid waste from the processing plant will be disposed, and potential contractual arrangements and distribution plans for recovered solid wastes or products produced.

(l) A proposed design providing enclosure for all installed processing equipment. Explosion-prone equipment such as primary shredders shall be placed in a separate room with explosion venting or explosion suppression equipment.

(m) A proposed design providing for shrouding and dust collection and removal equipment for the receiving area and all dry processing units such as shredders, screens, air classification devices, magnetic separators and similar equipment and all conveyor transfer points where dust is generated. Any air collected in this manner shall be directed through appropriate air pollution control equipment before being discharged.

(n) A discussion of any additional procedures for the control of dust, odors, fire, windblown materials and potential explosions and for the handling of the waste in the case of major processing facility breakdown. Dust within a facility shall be controlled so that operators are not exposed to undue health risk.

(o) A proposed design providing for all buildings enclosing processing equipment to have a sloped concrete floor with floor drains connected to a sanitary sewer or other system approved by the department.

(p) A proposed design providing for all processing, receiving or storage areas not enclosed by a building to be graded at a minimum 1% slope and surfaced with a material which will adequately support heavy equipment, resist frost action, provide a wearing surface and prevent contamination of groundwater. Runoff from these areas shall be directed to a sanitary sewer or other system approved by the department.

(q) A discussion of the quality and quantity of air discharge from plant operations and the need for any permits. For thermal processing facilities, the report shall include a proposed design to provide adequate temperature and residence time in the reaction chambers to assure complete processing and necessary air pollution control equipment to meet state air pollution control regulations.

(r) A discussion of the types of vehicles and access routes used to transport solid waste to and from the facility, including the estimated increase in traffic, and traffic flow patterns within the facility.

(s) A proposed design providing for access roads of all-weather construction and a maximum 10% grade. The intersection of the access road with an existing highway shall be designed to provide sufficient sight distance and provide for minimum interference with traffic on existing highways.

(t) A proposed design limiting access to the processing facility by means of fencing, natural barriers or other methods.

(u) Information to document that the size and configuration of the facility grounds, building and equipment, including the facility layout, drainage structures, building design, and major facility equipment, as specified to be shown in the engineering plans, are adequate for management of the proposed waste quantities and processes.

(v) Provisions for protection of groundwater and surface water during facility construction and operation.

(w) A discussion of possible operational hazards and necessary safety precautions.

(x) Procedures for facility closure.

Note: These facilities may be subject to other regulations including OSHA requirements.

(5) ENGINEERING PLANS. The plan of operation shall include a set of engineering plans and maps which contain the following information unless an exemption is granted by the department in writing:

(a) An existing conditions map, which shows the entire facility and the area within ¼ mile. The minimum scale shall be 1" = 400'. This map shall include the proposed facility boundary, property lines, easements and rights-of-way, buildings foundations, roads, utilities and other structures; topography, drainage swales, surface waters, wetlands, floodplains and similar drainage features; wooded areas; location of soil borings and test pits; features of historical and archaeological significance; and other features as appropriate.

(b) A facility plan which includes the proposed facility access roads and traffic patterns, buildings, scales, utility lines, drainage diversion, screening, means of access control, final topography, areas to be cleared of vegetation, and other design features. The extent of coverage and scale shall be the same as that for the existing conditions map.

(c) A proposed layout of each facility building including receiving, processing, and loadout areas. The minimum scale shall be 1" = 20'. The building layout shall also show the location of all major facility equipment, including material handling equipment, air handling and air pollution control equipment, floor drains and process sewers, and other pertinent design features.

(d) At least one cross section drawn through the receiving area, each process line, and the loadout area indicating existing topography, limits of excavation, proposed final grade, and other pertinent design features. More cross sections may be necessary depending on the complexity of the facility design.

(6) MINIMUM OPERATIONAL REQUIREMENTS. No person may operate or maintain a solid waste processing facility except in conformance with any approved plan of operation and the following minimum requirements:

(a) A sign, acceptable to the department, shall be posted at the entrance to the facility which indicates the name, license number, the hours of operation, a list of all prohibited wastes, the penalty for unauthorized use, all necessary safety precautions and other pertinent information.

(b) Access to the processing facility shall be limited to those times that an attendant is on duty.

(c) A processing facility shall be operated under the close supervision of responsible individuals who are thoroughly familiar with the requirements and operational procedures of the plant.

(d) Unloading of solid waste shall take place only in approved, designated areas. All solid waste, with the exception of that in the process line, shall be stored in conformance with s. NR 502.05.

(e) The operation shall be conducted in a manner to prevent public health hazards and nuisances, including keeping the processing facility and adjacent area clean and free from litter, and taking effective means to control flies, rodents and other insects or vermin.

(f) Waste containing free liquids, sludges or asbestos waste shall be excluded unless plans specifically addressing the handling of these materials have been submitted to the department and approved in writing. Solid waste which is flammable or explosive may not be accepted. Infectious waste may be accepted only in accordance with s. NR 526.12.

(g) Equipment shall be provided to control accidental fires and arrangements shall be made with the local fire protection agency to provide immediate services when needed.

(h) All operators shall be trained on the sources, quantities and characteristics of the wastes to be processed; process line start up procedures, routine monitoring and cleanup procedures; daily processing and equipment maintenance schedules; methods of controlling access, odors and windblown materials; methods of controlling fires and explosions, use of appropriate safety equipment; persons to contact concerning operational problems and emergencies. An operator training manual containing this and other pertinent operating information shall be prepared and maintained at the facility. Means of communication with emergency facilities shall be provided.

(i) Open burning of solid waste may not be conducted.

(j) Materials resulting from composting or similar processes and offered for sale or public distribution shall be:

1. Stabilized to eliminate pathogenic organisms and to ensure that the materials do not reheat upon standing.
2. Free of sharp particles which could cause injury to persons handling the compost.
3. Free of toxins which could cause detrimental impacts to public health or the environment.

(k) Dust generated by the unloading of solid waste and the operation of the processing facility shall be controlled in accordance with the state air management rules so as not to create nuisance conditions.

(l) If required by the department, permanent records of facility performance shall be maintained and submitted to the department with the relicensing application or as specified in the plan approval. Records shall indicate types, sources and amounts of solid waste processed, minor plant modifications performed, process monitoring data, amounts and characterization testing of process outputs, and other data as required by the department when granting the license.

(m) Arrangements shall be made with an approved solid waste disposal facility for use in the event that the processing facility is rendered inoperable or is not able to completely process the solid waste.

(n) By-products or residues shall be disposed of in facilities approved to receive such waste or shall be handled by an alternative method approved by the department.

(o) All areas disturbed during facility construction or operation shall be graded to a maximum slope of 3 horizontal to 1 vertical, covered with 6 inches of topsoil and seeded or otherwise protected from soil erosion. All borrow areas shall be abandoned in accordance with Wisconsin department of transportation procedures.

(7) CONSTRUCTION DOCUMENTATION. The department may require that a registered professional engineer document facility construction and render an opinion whether the facility has been constructed in substantial conformance with the approved plan. When a documentation report is required, it shall be prepared in accordance with the approved plan of operation and s. NR 500.05. Operation of the facility may not commence until the construction documentation report is approved in writing by the department and a license is issued. The department

is may issue a license prior to facility construction or construction documentation.

(8) MONITORING. Specific monitoring requirements and testing procedures for new, expanded and existing processing facilities will be determined by the department based on a review of the potential for environmental pollution. The department may require the owner or operator of any processing facility or any person who permits the use of property for that purpose to conduct monitoring as follows:

(a) Air quality monitoring.

(b) Product testing and waste characterization. The frequency of testing and parameters to be analyzed will be determined based on a review of the proposal and complexity of the product. The quality control program will correlate with the nature of the waste to be processed and final uses proposed for the material.

(c) Groundwater and surface water monitoring. The frequency and type of monitoring and analysis will be determined based on a review of the project.

(d) Periodic assessments of plant operation, process feasibility and marketability analyses of processed materials.

SECTION 73. NR 502.09(1) is repealed and recreated to read:

NR 502.09(1) GENERAL. (a) Unless exempt under sub. (2), no person may operate a solid waste incinerator unless the person complies with the general requirements in s. NR 502.04 and has obtained a plan of operation approval as specified in sub. (4) and an operating license from the department.

(b) Unless exempt under sub. (2), owners and operators of new or expanded solid waste incinerators shall demonstrate compliance with the locational criteria in sub. (3).

SECTION 74. NR 502.09(2)(a) to (d) are amended to read:

NR 502.09(2)(a) Incinerators having a capacity of 500 pounds per hour or less are exempt from all requirements of this section except the disposal requirements in sub. (5) (n) and the ash characterization requirements in sub. ~~(5)~~ (6). The facility shall be designed and operated in conformance with emission limitations of state air pollution control regulations in chs. NR 400 to 499.

(b) Incinerators burning only clean wood waste are exempt from all requirements of this section except the disposal requirements in sub. (5) (n) and the ash characterization requirements in sub. ~~(5)~~ (6).

(c) ~~Incinerators~~ Municipal solid waste combustors which are regulated under s. NR ~~502.14~~ 502.13 are not subject to regulation under this section.

(d) Incinerators which burn only used oil which is managed in compliance with ch. NR 590 are exempt from all requirements of this section ~~except sub. (5)~~.

SECTION 75. NR 502.09(3) is repealed and recreated to read:

NR 502.09(3) LOCATIONAL CRITERIA. (a) Except as otherwise specified in this section, new or expanded solid waste incinerator facilities may not be located in any of the following areas, unless an exemption has been granted under par. (b):

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.

(b) The department may require an incinerator facility meet additional locational criteria if there is significant potential for the facility to cause environmental pollution as defined in s. 144.01(3), Stats., nuisance conditions or bird hazard to aircraft. The department may grant exemptions from compliance with par. (a) 2 only upon demonstration by the applicant of circumstances which warrant such exemptions. Exemption from compliance with par. (a) 1. may not be granted.

SECTION 76. NR 502.09(4)(intro) is amended to read:

NR 502.09(4)(intro) No person may establish or construct an incinerator ~~facility~~ or expand an existing incinerator ~~after June 1, 1992~~ prior to obtaining approval in writing from the department of a plan of operation for the facility. ~~An operator of a solid waste incinerator which is in operation on June 1, 1992, shall submit a plan of operation in accordance with this section no later than 3 months after June 1, 1992.~~ The plan of operation for an incinerator shall provide a design which complies with the operational requirements in sub. (5) and contain, at a minimum, the following information:

SECTION 77. NR 502.09(4)(c) is repealed and recreated to read:

NR 502.09(4)(c) A report which shall include the following information:

1. The legal description of the property where the incinerator will be located.
2. Population, area and facilities to be served by the incinerator.
3. Anticipated type and quantity of waste to be handled by the incinerator.
4. Persons responsible for incinerator operations.
5. Methods of collecting and treating or disposing of any liquid wastes or waste waters resulting from the operation of the incinerator.

SECTION 78. NR 502.09(4)(d) to (g) are amended to read:

NR 502.09(4)(d) ~~Appurtenances~~ A description of all appurtenances and procedures intended to store refuse beyond the end of the working day and to control dust, odors, fire outside the burning chamber and windblown materials.

(e) ~~Methods~~ A description of all methods of volume reduction including compaction, compression, baling, shredding, grinding, tamping, separating or classifying.

(f) ~~Daily~~ A description of daily clean up procedures.

(g) ~~Incinerator~~ A description of incinerator inspection and maintenance schedule and procedures.

SECTION 79. NR 502.09(4)(j) is amended to read:

NR 502.09(4)(j) ~~The~~ Identification of the site at which the ash residue will be disposed and alternative sites available for use when the primary site is inoperative.

SECTION 80. NR 502.09(5)(intro) is amended to read:

NR 502.09(5)(intro) No person may operate or maintain an ~~incineration facility~~ incinerator except in conformance with the following minimum requirements, unless an exemption is granted by the department in writing:

SECTION 81. NR 502.09(5)(a) is amended to read:

NR 502.09(5)(a) The incinerator shall be ~~situated,~~ equipped, operated~~,~~ and maintained ~~as to minimize interference with other activities in the area~~ in a nuisance-free manner.

SECTION 82. NR 502.09(5)(k) is amended to read:

NR 502.09(5)(k) Adequate equipment shall be provided and used to ~~allow cleaning after each day of operation or~~ clean the waste storage, waste handling, waste charging, and ash handling areas as may be required in order to maintain the ~~plant~~ facility in a sanitary condition.

SECTION 83. NR 502.09(5)(n) is amended to read:

NR 502.09(5)(n) ~~Residue~~ Ash shall be disposed of at a solid waste facility licensed by the department to accept the material or be handled by an alternate method approved in writing by the department. Approval will be issued on a case-by-case basis after review of the information ~~contained~~ specified in sub. ~~(5)~~ (6).

SECTION 84. NR 502.09(5)(q) is amended to read:

NR 502.09(5)(q) Open burning of solid waste ~~shall~~ may not be conducted.

SECTION 85. NR 502.09(6)(title) and (intro) are amended to read:

NR 502.09(6)(title) ASH CHARACTERIZATION.(intro) The owner or operator of an ~~incineration facility~~ incinerator shall undertake a testing program as follows and submit the test results to the department:

SECTION 86. NR 502.09(6)(a) and (b) are amended to read:

NR 502.09(6)(a) An ash testing program shall be completed within 60 days ~~of~~ after construction and shake-down of the incinerator. Representative samples of both fly ash and bottom ash shall be tested for physical characteristics, bulk chemical composition, analysis using the appropriate leaching test and analysis using the ~~EP toxicity test or other test to determine the wastes' regulatory status under federal or state hazardous waste laws~~ toxicity characteristic leaching procedure as specified in s. NR 605.08(5). ~~Test~~ Sample collection methods, the number of tests, detection limits, and parameters to be tested for will be specified by the department.

(b) A long-term ash testing program shall be established. For the first year of operation, quarterly testing ~~of at least one sample of bottom ash and one sample of fly ash~~ shall be performed using approved methods and procedures. Thereafter, annual sampling and testing shall be performed. At least one sample of bottom ash and one sample of fly ash, if the ashes are not mechanically combined, or one sample of combined bottom and fly ash, if the ashes are mechanically combined, shall be collected for the required testing. The department may specify an alternate testing program.

SECTION 87. NR 502.10(1), (2) and (3) are repealed and recreated to read:

NR 502.10(1) GENERAL. (a) No person may operate or maintain an air curtain destructor unless the person complies with the general requirements specified in s. NR 502.04 and has obtained a plan of operation approval as specified in sub. (3) and an operating license from the department.

(b) Owners and operators of new or expanded air curtain destructors shall demonstrate compliance with the locational criteria listed in sub. (2).

(2) LOCATIONAL CRITERIA FOR AIR CURTAIN DESTRUCTOR FACILITIES. (a) Except as otherwise specified in this section, new or expanded air curtain destructor facilities may not be located in any of the following areas, unless an exemption has been granted under par. (b):

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.
3. Within 250 feet of any navigable lake, pond or flowage.
4. Within 250 feet of any navigable river or stream.
5. Within 100 feet of land owned by a person other than the owner or operator of the facility, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the property boundary.
6. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.

(b) The standards listed under par. (a) 2. to 6. do not apply to above ground self contained air curtain destructors. The department may grant exemptions from the requirements of par. (a) 2. to 6. only upon demonstration by the

applicant of circumstances which warrant the exemptions. Exemption from compliance with par. (a) 1. may not be granted.

(3) PLAN OF OPERATION. No person may establish or construct an air curtain destructor or expand an existing air curtain destructor prior to obtaining approval in writing from the department of a plan of operation for the facility. The plan of operation shall include a design which complies with the design and operational requirements in sub. (4) and contains at a minimum the following:

(a) Name, address and telephone number of the facility operator.

(b) A description of the types, quantity and sources of material proposed to be burned, and anticipated frequency of burning.

(c) Written consent to operate the facility from all adult residents and business owners within ¼ mile of the burning pad, except that consent is not required from any person who was not an adult resident or proprietor at the time the facility was initially licensed by the department, unless that person is a successor in interest to a person who was an adult resident or proprietor at the time. If a resident or proprietor who previously consented to operation of the facility withdraws the consent in writing, the withdrawal is not effective until the end of the current license period for the facility.

SECTION 88. NR 502.10(4)(title) and (intro) are amended to read:

NR 502.10(4)(title) DESIGN AND OPERATIONAL REQUIREMENTS.(intro) No person may construct, operate or maintain an air curtain destructor except in conformance with all local burning regulations and permits, state air management rules, with any approved plan of operation and the following minimum requirements:

SECTION 89. NR 502.10(4)(a), (e), (f), (h), and (i) are amended to read:

NR 502.10(4)(a) The burning pit shall be constructed of a material which will result in a pit of permanent dimensions. Unconsolidated soils are not an acceptable material for construction of the burning pit. Maintenance shall be performed on the pit to keep its dimensions constant to keep the air curtain destructor ~~working~~ operating properly.

(e) Only clean wood~~,~~ and brush ~~and baled paper wastes~~ may be burned in an air curtain destructor. Brush shall be burned only in conformance with s. 159.07, Stats.

(f) The stockpile of waste material shall be kept a minimum of 100 feet from the burner. ~~The stockpile shall be limited to one week of accumulation. The department may grant an exemption to the one week limitation upon demonstration of need by the operator~~ The total amount of stockpiled waste shall be limited to the amount that can be burned in 5 days.

(h) Waste shall be ~~carefully~~ placed so ~~not to have waste extending~~ that it does not extend above the burning pit or ~~interfering~~ interfere with air circulation.

(i) Start-up shall be accomplished by using wood kindling material to ignite larger materials ~~rather than using fuel oil, tires, or other rubber materials~~. Where sufficient quantities of wood kindling materials are unobtainable, other methods approved by the department in writing may be used.

SECTION 90. NR 502.10(4)(m) and (n) are repealed.

SECTION 91. NR 502.10(4)(o) to (u) are renumbered to NR 502.10(4)(m) to (s) and NR 502.10(4)(n), (p) and (s) as renumbered are amended to read.

NR 502.10(4)(n) An attendant shall be on duty at all times when the blower unit is in operation. All fires shall be ~~out~~ extinguished when the blower unit is shut off.

(p) A sign~~,~~ acceptable to the department~~,~~ shall be posted at the entrance to the operation which indicates the name, acceptable wastes, license number, the hours of operation, penalty for nonauthorized use, necessary safety precautions and any other pertinent information.

(s) The facility shall be operated in a nuisance-free manner consistent with this chapter and in accordance with the state air management rules in chs. NR 400 to 499.

Note: Air curtain destructor facilities must obtain a burning permit during certain times of the year under s. 26.12, Stats., or may be required to obtain a burning permit from the township in which the burning will occur.

SECTION 92. NR 502.10(5) is repealed.

SECTION 93. NR 502.11 is repealed and recreated to read:

NR 502.11 WOODBURNING FACILITIES. (1) GENERAL. (a) Unless exempt under sub. (2), owners and operators of woodburning facilities shall comply with the general requirements in s. NR 502.04, comply with the design and operational requirements in sub. (5), and obtain a plan of operation approval as specified in sub. (4) and an operating license from the department.

(b) Unless exempt under sub. (2), owners and operators of new or expanded woodburning facilities shall demonstrate compliance with the locational criteria in sub. (3).

(2) EXEMPTIONS. The following woodburning facilities are exempt from licensing and all requirements of this section, although a burning permit from the department may still be required during certain times of the year in counties within a forest fire control area. These exempt facilities may not burn wet combustible rubbish, garbage, oily substances, asphalt, plastic or rubber products, unless these substances are exempt under s. NR 429.04.

(a) Burning of trees, limbs, stumps, brush or weeds, except for yard waste, as a result of agricultural or silvicultural activities, if the burning is conducted on the property where the waste is generated.

(b) Burning of trees, limbs, stumps, brush or weeds, except for yard waste, as a result of clearing or maintenance of highway, railroad or utility rights-of-way and other land clearing operations, if the burning is conducted on the property where the waste is generated.

(c) Burning existing structures for practice and instruction of fire fighters or testing of fire fighting equipment. If the burning includes a building, a demolition notification shall be submitted to the air management program of the department. Asphalt shingles and asphalt and plastic siding shall be removed from structures unless they are considered necessary to the fire practice. All material containing asbestos shall be removed in compliance with ch. NR 447. Ash from the burned structure shall be disposed of, when cool, in a landfill approved by the department. The department may approve alternate ash disposal sites if groundwater and surface water quality will not be affected.

(d) Burning of yard waste and small quantities of dry combustible household rubbish, including paper, cardboard and clean untreated wood from a single family or household, on property where it is generated, unless prohibited by local ordinance.

(e) In emergency situations such as natural disasters, brush and other yard waste can be disposed in a landfill or burned without energy recovery, with approval from the department.

(f) One time burning of dry, unpainted and untreated wood, stumps, trees and brush in conformance with s. 159.07, Stats. Department staff shall be notified prior to the burn to obtain concurrence that the burn is in accordance with this provision and that the amount of this wood to be burned on a one time basis and the rate of burning comply with state air management rules in chs. NR 400 to 499.

Note: Woodburning facility license requirements do not apply to backfires set by fire control personnel to aid in controlling forest fires or fires set for forest, wildlife habitat or grassland management purposes.

(3) LOCATIONAL CRITERIA. (a) Except as otherwise specified in this chapter, new or expanded woodburning facilities may not be located in any of the following areas, unless an exemption is granted under par. (b):

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.
3. Within 250 feet of any navigable lake, pond or flowage.
4. Within 250 feet of any navigable river or stream.
5. Within 100 feet of land owned by a person other than the owner or operator of the facility, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the property boundary.
6. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.
7. Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by

piston type aircraft or within other areas where a substantial hazard to aircraft would be created.

8. Within ¼ mile of any residence unless a written consent is obtained from all adult residents within ¼ mile of the burning pad.

9. Within the limits of fill of an existing or abandoned landfill.

(b) The department may grant exemptions to par. (a) 2. to 7., only upon demonstration by the applicant of circumstances which warrant the exemptions. Exemptions from compliance with par. (a) 1., 8. and 9., may not be granted.

(4) PLAN OF OPERATION. No person may establish or construct a woodburning facility or expand an existing woodburning facility prior to obtaining approval in writing from the department of a plan of operation for the facility. Unless otherwise approved by the department in writing, the plan of operation shall include a design which complies with the design and operational requirements in sub. (5) and contains at a minimum the following:

(a) Name, address and telephone number of facility operator.

(b) A description of the types, quantity and sources of material proposed to be burned, and anticipated frequency of burning.

(c) Written consent from all adult residents and business owners within ¼ mile of the burning pad, except that consent is not required from any person who was not an adult resident or proprietor at the time the facility was initially licensed by the department, unless that person is a successor in interest to a person who was an adult resident or proprietor at the time. If a resident or proprietor who previously consented to operation of the facility withdraws the consent in writing, the withdrawal is not effective until the end of the current license period for the facility.

(5) DESIGN AND OPERATIONAL REQUIREMENTS. No person may construct, operate or maintain a woodburning facility except in conformance with all local burning regulations and permits, state air management rules in chs. NR 400 to 499, any approved plan of operation and the following minimum requirements:

(a) All burning shall be done on a burning pad or pit constructed of concrete, compacted gravel, compacted mineral soil or other materials approved in writing by the department. A firebreak of mineral soil scraped free of vegetation for a minimum distance of 100 feet around the burning pad or pit shall be constructed. Greater setback distances may be required by the department.

(b) Only dry, unpainted and untreated wood, stumps or trees may be burned at a woodburning facility. Brush shall be burned only in conformance with s. 159.07, Stats.

(c) Waste material may be placed or stored on the burning pad, but may not exceed the amount of wood that can be burned in one day in conformance with ch. NR 445. Any additional accumulation of waste material shall be stockpiled a minimum of 100 feet from the burning pad. The total amount of stockpiled waste shall be limited to the amount that can be burned in 5 calendar days.

(d) Start-up shall be accomplished by using wood kindling material to ignite larger materials. Where sufficient quantities of wood kindling materials are unobtainable, other methods approved by the department in writing may be used.

(e) Burning shall be conducted only during daylight hours.

(f) Fire-fighting equipment shall be kept at the facility in case of emergency, unless the services of a local fire protection agency are arranged.

(g) The burning pad shall be surrounded by a fence with a lockable gate. The gate shall be kept locked when no attendant is on duty.

(h) An attendant shall be on duty at all times when burning is taking place. All fires shall be extinguished before the attendant leaves the facility. The fire shall be actively tended and maintained to promote complete combustion, ensure good fuel-flame contact and burndown.

(j) A sign acceptable to the department shall be posted at the entrance to the operation which indicates the facility name, acceptable wastes, license number, the hours of operation, penalty for unauthorized use, necessary safety precautions and any other pertinent information.

(k) Storm water shall be diverted away from the burning pad, storage area and access areas.

(l) Ash resulting from the operation shall be disposed of at a facility approved by the department to receive that material.

(m) The facility shall be operated in a nuisance-free manner.

Note: Woodburning facilities must obtain a burning permit during certain times of the year under s. 26.12, Stats., or may be required to obtain a burning permit from the township in which the burning will occur.

SECTION 94. NR 502.12 is repealed and recreated to read:

NR 502.12 YARD, FARM AND VEGETABLE FOOD WASTE COMPOSTING FACILITIES. (1) GENERAL. No person may operate or maintain a solid waste composting facility for yard waste, clean chipped wood, farm crop residue, farm animal manure, animal carcasses or vegetable food waste, except in accordance with the following requirements:

(a) Unless exempt under sub. (2), comply with the performance standards in s. NR 502.04 (1) and operate the facility in a nuisance-free and environmentally sound manner.

(b) Unless exempt under sub. (2), (3) or (4), comply with the closure requirements in s. NR 502.04 (3) (a) and (b), and the minimum operational and design standards in subs. (10) and (11).

(c) Unless exempt under sub. (2), (3), (4) or (5), obtain an operating license from the department.

(d) Unless exempt under sub. (2), (3), (4) or (5), owners and operators of new or expanded facilities regulated under this section shall comply with the

initial site inspection requirements in s. NR 502.04 (2) and demonstrate compliance with the locational criteria in sub. (8).

(e) Unless exempt under sub. (2), (3), (4), (5), (6) or (7), comply with all of the following:

1. The requirements in s. NR 502.04 (3) (c), (4), (5) and (6).
2. The additional operational and design standards in sub. (12).
3. Obtain a plan of operation approval and a construction documentation approval as specified in subs. (13) and (14).
4. The monitoring and reporting requirements specified in sub. (15).

(f) Unless exempt under sub. (2), (3), (4), (5), (6) or (7), owners and operators of new or expanded facilities regulated under this section shall comply with the initial site inspection requirements in s. NR 502.04 (2) and demonstrate compliance with the locational criteria in sub. (9).

Note: Facilities for composting waste types other than yard waste, clean chipped wood, farm crop residue, farm animal manure, animal carcasses or vegetable food waste are regulated under s. NR 502.08. Local ordinances may apply to facilities regulated under this section. Tables summarizing applicable requirements are provided at the end of the section.

(2) HOUSEHOLD EXEMPTION. Facilities for composting only solid waste from a single family or household, a member of which is the owner, occupant or lessee of the property where the facility is located, are exempt from the requirements of s. NR 502.04, the licensing requirement and all requirements of this chapter, provided the facility is operated in a nuisance-free and environmentally sound manner.

(3) EXEMPTION FOR YARD AND VEGETABLE FOOD WASTE COMPOSTING FACILITIES WITH CAPACITY OF 50 CUBIC YARDS OR LESS. Facilities for composting yard waste, clean chipped wood waste, vegetable food waste or manure which do not exceed 50 cubic yards at one time are exempt from the requirements specified in s. NR 502.04 (2) to (6), locational criteria, plan of operation submittal, licensing and all other requirements of this chapter provided all of the following requirements are met:

(a) The requirements specified in s. NR 502.04 (1).

(b) The facility is operated in a nuisance-free and environmentally sound manner.

(4) EXEMPTION FOR ON SITE FARM CROP RESIDUE OR MANURE COMPOSTING FACILITIES. Facilities for on site composting of farm crop residue or manure directly from agricultural operations are exempt from the requirements of s. NR 502.04 (2) to (6), locational criteria, plan of operation submittal, licensing and all other requirements of this chapter, provided all of the following requirements are met:

(a) The performance standards in s. NR 502.04 (1).

(b) The facility is operated in a nuisance-free and environmentally sound manner.

(c) All the farm crop residue and manure composted are generated from agricultural operations either under common ownership, common management or located adjacent to each other.

(d) The compost is utilized for agricultural landspreading, at the same farm or at another farm, in accordance with s. NR 518.04 (1) (b) or (i).

(e) If yard waste or clean chipped wood are accepted from off site, the following requirements shall be met:

1. The minimum operational and design standards in subs. (10) and (11).
2. The yard waste and clean chipped wood shall be mixed with manure to increase the carbon to nitrogen ratio and the porosity of the composting process.
3. The combined volume of farm crop residue, farm animal manure, yard waste and clean chipped wood on site at one time may not exceed 10,000 cubic yards, including collected feedstocks, the composting process and finished compost.

Note: Animal manure management is also regulated under ch. NR 243. Public distribution of the compost may be regulated by the department of agriculture, trade and consumer protection (DATCP). Local ordinances may apply to facilities regulated under this section. The following landspreading operations are exempt under s. NR 518.04 (1) (b), (h) and (i), respectively, provided the material is applied as a soil conditioner or fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner:

- Farms on which only nonhazardous agricultural solid wastes resulting from the operation of a farm, including farm animal manure, are disposed.
- Landspreading of uncomposted yard waste.
- Landspreading composted leaves, grass, brush, vegetable food waste and other similar vegetable matter.

(5) EXEMPTION FOR ON SITE FARM ANIMAL CARCASS COMPOSTING FACILITIES. Facilities for on site farm composting of animal carcasses are exempt from the requirements in s. NR 502.04 (2) to (6), locational criteria, plan of operation submittal, licensing and all other requirements of this section, provided they are in compliance with s. 95.50 (1), Stats., and all of the following:

(a) The performance standards in s. NR 502.04 (1).

(b) The minimum operational and design standards in subs. (10) and (11).

(c) Only animal carcasses, farm animal manure, farm crop residue, yard waste and clean chipped wood are composted at the facility.

(d) All the farm wastes composted are generated from agricultural operations either under common ownership, common management or located adjacent to each other.

(e) The compost is utilized for agricultural landspreading, at the same farm or at another farm, in accordance with s. NR 518.04 (1) (b) or (i).

(f) If yard waste or clean chipped wood are accepted from off site, the following requirements shall be met:

1. The yard waste or clean chipped wood shall be mixed with farm wastes to increase the carbon to nitrogen ratio and porosity of the composting process.
2. The combined volume of animal carcasses, farm animal manure, farm crop residue, yard waste and clean chipped wood on site at one time may not exceed

10,000 cubic yards, including collected feedstocks, the composting process and finished compost.

(6) EXEMPTION FOR YARD WASTE COMPOSTING FACILITIES WITH CAPACITY OF 20,000 CUBIC YARDS OR LESS. Facilities for composting yard waste and clean chipped wood waste which do not exceed 20,000 cubic yards at one time are exempt from the requirements in s. NR 502.04 (3) (c), (4), (5) and (6), plan of operation submittal and all other requirements of this chapter, provided all of the following requirements are met:

(a) The performance standards and closure requirements in s. NR 502.04 (1) and (3) (a) and (b).

(b) New or expanded facilities shall comply with the initial site inspection requirements in s. NR 502.04 (2) and demonstrate compliance with the locational criteria in sub. (8).

(c) The minimum operational and design standards in subs. (10) and (11).

(d) An operating license for the facility is issued by the department.

(e) The compost is utilized for landspreading, either on site or off site, in accordance with s. NR 518.04 (1)(i).

(7) EXEMPTION FOR VEGETABLE FOOD COMPOSTING FACILITIES WITH CAPACITY OF 500 CUBIC YARDS OR LESS. Facilities for composting vegetable food waste which do not exceed 500 cubic yards at one time are exempt from the requirements in s. NR 502.04 (3)(c), (4), (5) and (6), plan of operation submittal and all other requirements of this section, provided all of the following requirements are met:

(a) The requirements in s. NR 502.04 (1) and (3) (a) and (b).

(b) New or expanded facilities shall comply with s. NR 502.04 (2) and demonstrate compliance with the locational criteria in sub. (8).

(c) The minimum operational and design standards in subs. (10) and (11).

(d) An operating license for the facility is issued by the department.

(e) The compost is utilized for landspreading, either on site or off site, in accordance with s. NR 518.04 (1) (i).

(f) Only vegetable food waste, yard waste and clean chipped wood are composted at the facility.

(8) LOCATIONAL CRITERIA FOR EXEMPT YARD WASTE COMPOSTING FACILITIES AND EXEMPT VEGETABLE FOOD WASTE COMPOSTING FACILITIES. (a) Facilities described in sub. (6) or (7) may not be located in any of the following areas unless an exemption has been granted in writing by the department under par. (b):

1. Within a floodplain.
2. Within 5 feet of the seasonal high groundwater table.
3. Within 250 feet of any private water supply well, or within 1200 feet of any public water supply well.

4. Within 250 feet of any navigable lake, pond or flowage.
5. Within 250 feet of any navigable river or stream.
6. Within 100 feet of land owned by a person other than the owner or operator of the facility.
7. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.
8. Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created. This criterion is applicable only when the facility will be used for handling putrescible waste.

(b) The department may grant exemptions from par. (a) 2. to 8., only upon demonstration by the applicant of circumstances which warrant the exemption. Exemption from compliance with par. (a) 1. may not be granted.

(9) LOCATIONAL CRITERIA FOR NONEXEMPT COMPOSTING FACILITIES. (a) Unless exempt under sub. (2), (3), (4), (5), (6) or (7), new or expanded composting facilities regulated under this section may not be located in any of the following areas unless an exemption has been granted in writing by the department under par. (b):

1. Within a floodplain.
2. Within 5 feet of the seasonal high groundwater table.
3. Within 250 feet of any private water supply well, or within 1200 feet of any public water supply well.
4. Within 500 feet of any navigable lake, pond or flowage.
5. Within 250 feet of any navigable river or stream.
6. Within 250 feet of land owned by a person other than the owner or operator of the facility.
7. 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, unless the facility is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.
8. Within 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created. This criterion is applicable only when the facility will be used for handling putrescible waste.

(b) The department may grant exemptions from par. (a) 2. to 8. only upon demonstration by the applicant of circumstances which warrant the exemption. Exemption from compliance with par. (a) 1. may not be granted.

(10) MINIMUM OPERATIONAL STANDARDS FOR COMPOSTING FACILITIES. Unless exempt under sub. (2), (3) or (4), no person may operate or maintain a composting facility regulated under this section except in accordance with the following minimum operational requirements:

(a) Wastes accepted for composting shall be source separated at the point of generation so that the wastes have not been mixed or otherwise contaminated

with nonapproved waste types, particularly materials which are not readily biodegradable. Prior to incorporation into the composting process, the wastes shall be sorted as needed to ensure that materials which are not readily biodegradable are removed unless alternate operational methods are used in conjunction with equipment to produce a compost product virtually free of physical and chemical contaminants.

Note: Compost product which contains physical or chemical contaminants of concern, such as plastic, glass, metal scraps or heavy metals, may require controlled disposal under an approved landspreading plan or at a landfill.

(b) Wastes shall be debagged within 24 hours of receipt at the facility. Stored waste shall be managed in accordance with the requirements applicable to the composting process. The following operational standards shall also be met for the wastes specified:

1. Grass clippings, manure and food waste from canned, frozen or preserved fruit or vegetable processing operations shall be incorporated into windrows or other composting process within 72 hours of receipt at the facility, unless odor becomes a problem at the facility in which case these wastes shall be incorporated within 24 hours.
2. Animal carcasses and food waste which is not from canned, frozen or preserved fruit or vegetable processing operations shall be incorporated into windrows or other composting process on the same operating day as received at the facility. Upon initial incorporation of animal carcasses or these food wastes, composting windrows or piles shall be covered with a minimum 6 inch layer of compost, high carbon material such as wood chips, or other suitable material to control odor and vectors.
3. All animal carcasses and food waste shall be managed to prevent dogs and wild animals from reaching the wastes.

(c) Yard waste, wood waste, vegetable food waste, animal carcasses and crop residue shall be size reduced if necessary to provide adequate particle surface area for effective composting.

(d) Materials within the composting process shall be thoroughly mixed and aerated as frequently as necessary to ensure that adequate oxygen is available at all times within the waste to prevent the process from becoming anaerobic.

Note: To maintain aerobic composting and prevent odor, aeration is needed whenever the process temperature rises to 150°F or more, or when the oxygen level drops to 15% or less. Windrows consisting primarily of leaves and wood waste are likely to require turning at least monthly from spring through fall.

(e) Materials shall be mixed into the composting process to provide a minimum carbon to nitrogen ratio of 12:1.

Note: For aerobic composting, the optimum carbon to nitrogen ratio ranges from approximately 20:1 to 40:1.

(f) Maximum windrow size and minimum windrow spacing shall match the capability and requirements of the equipment utilized at the facility.

(g) Material within the composting process shall be wetted as needed to control dust and maintain a moisture content conducive to efficient composting.

Note: For aerobic composting, the optimum moisture content is 50 to 60% by weight.

(h) Materials resulting from composting shall be:

1. Stabilized to eliminate pathogenic organisms and to ensure that the materials do not reheat upon standing.
2. Free of sharp particles which could cause injury to persons handling the material.
3. Free of toxins which could cause detrimental impacts to public health or the environment.

Note: Pathogens are defined in ch. NR 204 as "disease causing organisms, including but not limited to certain bacteria, protozoa, viruses and viable helminth ova." Appropriate methods for pathogen elimination during composting are specified in 40 CFR, Part 257, Appendix II, Section B:

1. For in-vessel or static aerated pile composting, maintain a continuous minimum temperature of 55°C, or 131°F, for a minimum of 3 consecutive days.
2. For windrow composting, attain a minimum temperature of 55°C, or 131°F, on a minimum of 15 days, which are not required to be consecutive, and turn the windrow a minimum of 5 times during the high temperature periods.

(i) Compost product storage time shall be minimized to maintain the quality of the compost and the product shall be marketed as necessary to prevent excessive stockpiling.

(j) The facility shall be operated in a nuisance-free and environmentally sound manner.

Note: Landspreading of composted leaves, grass, brush, vegetable food waste and other similar vegetable matter is exempt from department landspreading regulations under s. NR 518.04(1)(i) provided the material is applied as a soil conditioner or fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner. Public distribution of the compost may be regulated by the department of agriculture, trade and consumer protection (DATCP).

(11) MINIMUM DESIGN STANDARDS FOR COMPOSTING FACILITIES. Unless exempt under sub. (2), (3) or (4), no person may construct or maintain a composting facility regulated under this section except in accordance with the following minimum design standards:

(a) Run-off from the composting area shall be discharged to a gentle sloping grassed area of sufficient size to prevent erosion and surface discharge from the composting area.

(b) Slope, vegetation and surface water containment ditches and retention basins shall be used at the facility as needed to minimize erosion.

(c) Composting shall take place on an area sloped sufficiently to prevent ponding, and measures such as berms or ditches shall be used to prevent storm water run-on.

(d) The overall composting facility size shall be based on the process residence times for the materials to be composted.

(12) ADDITIONAL OPERATIONAL AND DESIGN STANDARDS FOR NONEXEMPT COMPOSTING FACILITIES. Unless exempt under sub. (2), (3), (4), (5), (6) or (7), new or expanded composting facilities regulated under this section shall comply with the following additional operational and design standards:

(a) All run-off that contacts waste shall be managed as leachate and shall be directed to either a collection basin or a tank. Leachate may be used in the composting operation for moisture addition. All other leachate shall be treated at a wastewater treatment facility permitted to accept it.

(b) All composting, and storage of waste materials and compost, shall take place on a low permeability pad constructed of either asphalt, concrete, recompacted clay or other material approved by the department.

(c) At a minimum, the leachate collection capacity shall be designed for a 25 year, 24 hour storm event as defined in s. NR 205.05.

(13) PLAN SUBMITTAL REQUIREMENTS FOR NONEXEMPT COMPOSTING FACILITIES. Unless the facility is exempt under sub. (2), (3), (4), (5), (6) or (7), applicants for all new or expanded composting facilities regulated under this section shall submit a plan of operation report and obtain department approval of the plan of operation report prior to construction of the new or expanded facility. Unless an exemption is granted by the department in writing, the plan shall be submitted in accordance with s. NR 500.05, provide a design which complies with subs. (10), (11) and (12), and contain the following minimum information:

(a) The location of the property where the facility is proposed to be located.

(b) A brief description of the project, including the area served, an estimate of the total volume of material to be processed and the types of waste feedstocks to be composted.

(c) A description and drawing of the proposed facility, including location and size of windrows, or other composting process, on site traffic and process flow, the property boundaries, routes to transport feedstocks and finished compost to and from the facility and present land use within ¼ mile of the facility.

(d) A description of the procedures for processing the material prior to incorporation into the windrow, or other composting process, such as de-bagging or size reduction.

(e) For each waste feedstock proposed to be composted, either laboratory or literature data documenting the carbon, nitrogen, phosphorus and potassium content and pH.

(f) A proposed feedstock mix for composting, with calculations or laboratory data documenting the carbon, nitrogen, phosphorus and potassium content and pH of the mix.

(g) A specification of the maximum size, including volume, height and width, for staging piles, composting windrows or other composting processes, curing piles, and finished compost storage. If the waste on site at any one time will exceed either 40,000 cubic yards of yard waste and clean chipped wood or 1,000 cubic yards of vegetable food waste, an estimate of closure costs shall be provided with the plan of operation report, and prior to licensure, proof of financial responsibility shall be provided for the closure costs, including the removal, transport and ultimate disposal of all waste material and compost at the site.

(h) A specification of the methods of measuring critical parameters within the windrow and other composting processes, and a description of methods to ensure the critical parameters are met. Critical parameters addressed shall include carbon to nitrogen ratio, temperature, moisture content, pH and stability. Actions to be taken in response to odors shall be specified. Frequency of turning and residence times shall be specified.

(i) A description of the type of vehicles used for transporting feedstocks and finished compost to and from the facility, and a description of the type of equipment for turning or mixing and screening.

(j) A discussion of potential markets for the compost and material specifications necessary to be met for these markets, such as nutrient content, pH, particle size, appearance, moisture holding capacity or other pertinent specifications.

(k) Identification of any noncompostable waste, such as bags, which will be generated from the composting operation, and the names and location of solid waste disposal facilities at which any waste generated from the composting operation will be disposed.

(l) Specification of the design, construction and documentation to be used for the low permeability pad, including materials, thicknesses and testing.

(14) CONSTRUCTION DOCUMENTATION FOR NONEXEMPT COMPOSTING FACILITIES. (a) Unless exempt under sub. (2), (3), (4), (5), (6) or (7), owners and operators of new or expanded composting facilities regulated under this section shall submit a construction documentation report to the department and obtain department approval of the construction documentation report prior to operation of the facility.

(b) Unless an exemption is granted by the department in writing, the construction documentation report shall be prepared in accordance with the department's plan approval and the requirements in s. NR 500.05. The construction documentation report shall be approved by the department prior to obtaining a license and prior to accepting waste at the facility.

(15) MONITORING AND REPORTING FOR NONEXEMPT COMPOSTING FACILITIES. Unless exempt under sub. (2), (3), (4), (5), (6) or (7), owners and operators of new or expanded composting facilities regulated under this section shall complete monitoring and reporting in accordance with the plan of operation approval and the following requirements:

(a) Samples of the finished compost shall be collected each 1,000 cubic yards or 3 times per year, which ever is more frequent. The samples shall be tested for carbon, nitrogen, phosphorus, potassium and pH.

(b) Unfiltered leachate samples shall be taken from the collection basin or tank, and tested quarterly for the first 4 quarters and annually thereafter for BOD_5, COD, field pH, field conductivity corrected to 25°C, nitrates, and total dissolved solids.

Note: Tables 1 and 2 summarize the requirements contained in this section for general information only and are not intended to replace the requirements contained in this chapter.

TABLE 1. SUMMARY OF LOCATIONAL CRITERIA FOR COMPOSTING FACILITIES

FACILITY TYPE	SET BACK DISTANCE (feet) groundwater	water supply wells public	water supply wells private	lake	river	property line	highways	airport
Less than 20,000 c.y. yard waste	5	1200	250	250	250	100	1000	none
Less than 500 c.y. vegetable food waste	5	1200	250	250	250	100	1000	5,000/10,000
Greater or equal to 20,000 c.y. yard waste	5	1200	250	500	250	250	1000	none
Greater or equal to 500 c.y. vegetable food waste	5	1200	250	500	250	250	1000	5,000/10,000

Note: Composting facilities may not be located within a floodplain. Locational criteria do not apply to the following types of composting facilities: single family, less than 50 c.y. yard & food wastes, on site farm crop residue & manure, and on site farm animal carcasses.

TABLE 2. SUMMARY OF REQUIREMENTS FOR COMPOSTING FACILITIES

FACILITY TYPE	GENERAL s. NR 502.04	OPERATING LICENSE	MINIMUM OPERATION & DESIGN s. NR 502.12 (10) & (11)
Single family	none	no	no
Less than 50 c.y. yard & food	sub. (1)	no	no
On site farm crop residue & manure	sub. (1)	no	no
On site farm animal carcasses	sub. (1)	no	yes
Less than 20,000 c.y. yard waste	subs. (1), (2), (3)(a) & (3)(b)	yes	yes
Less than 500 c.y. vegetable food waste	subs. (1), (2), (3)(a) & (3)(b)	yes	yes

Note: Additional operation and design, plan submittal, construction documentation and monitoring and reporting requirements in s. NR 502.12 (12) to (15) apply to the following composting facilities: greater or equal to 20,000 c.y. yard waste and greater or equal to 500 c.y. vegetable food waste.

SECTION 95. NR 502.13 and 502.14 are repealed.

SECTION 96. NR 502.13 is created to read:

NR 502.13 MUNICIPAL SOLID WASTE COMBUSTORS. (1) GENERAL. (a) No person may operate or maintain a municipal solid waste combustor unless the person complies with the requirements in s. NR 502.04 and obtains a plan of operation approval under sub. (3) and an operating license from the department.

(b) Owners and operators of new or expanded municipal solid waste combustor facilities having a design capacity of greater than 100 tons per day shall provide proof of financial responsibility for closure prior to licensure. Closure costs shall include the costs of removal, transport and ultimate disposal of wastes.

(c) Owners and operators of new or expanded municipal solid waste combustor facilities shall demonstrate compliance with the applicable locational criteria listed in sub. (2).

(2) LOCATIONAL CRITERIA. (a) No person may establish, construct or expand a municipal waste combustor within the following areas, except as otherwise specified within this chapter.

1. Within a floodplain.
2. Within 250 feet of any private water supply well, or within 1,200 feet of any public water supply well.

(b) Exemptions from the requirements of par. (a) 2. may be granted only upon demonstration by the applicant of circumstances which warrant the exemptions. Exemptions from compliance with par. (a) 1. may not be granted. The department may impose additional locational criteria if there is a significant potential for the facility to cause environmental pollution as defined in s. 144.01(3), Stats., nuisance conditions or bird hazard to aircraft.

(3) PLAN OF OPERATION. No person may establish, construct or operate a municipal solid waste combustor or expand an existing facility prior to obtaining approval in writing from the department of a plan of operation for the facility. The plan of operation for the municipal solid waste combustor shall provide a design which complies with the operational requirements in sub. (4) and contain, at a minimum, the following:

(a) A map or aerial photograph of the area showing land use and zoning within ¼ mile of the site. The map or aerial photograph shall be of sufficient scale to show all homes, industrial buildings, roads and other applicable details and the details shall be identified and indicated on the map or aerial photograph.

(b) A plot plan of the municipal solid waste combustor site including means of limiting access such as fencing, gates, natural barriers; methods of acceptably screening the facility from the surrounding area; general layout of equipment and flow pattern; road access; and location of existing and proposed utilities serving the municipal solid waste combustor.

(c) A report which shall include the following information:

1. The legal description of the property where the municipal solid waste combustor will be located.
2. Population, area and facilities to be served by the municipal solid waste combustor.

3. Anticipated type and quantity of waste to be handled by the municipal solid waste combustor.
4. Persons responsible for the municipal solid waste combustor operations.
5. Methods of treating or disposing of any liquid wastes or waste waters resulting from the operation of the combustor.

(d) A descriptio of appurtenances and procedures intended to store refuse beyond the end of the working day and to control dust, odors, fire outside the burning chamber and windblown materials.

(e) A description of methods of volume reduction including compaction, compression, baling, shredding, grinding, tamping, separating or classifying.

(f) A description of daily clean up procedures.

(g) A description of municipal solid waste combustor inspection and maintenance schedule and procedures.

(h) Detailed drawings and specifications of all structures, equipment and site.

(i) A report which includes furnace design criteria and expected performance data.

(j) Identification of the site at which the residue will be disposed and alternative sites available for use when the primary site is inoperative.

(k) For all new or expanded facilities, the plan of operation shall also include:

1. The name of the emergency fire-fighting unit that will respond to fire calls at the facility.
2. A discussion of the anticipated sequence of required events for facility closure.
3. A detailed analysis in accordance with ch. NR 520 of the financial responsibility for facility closure. This shall include an itemized cost estimate for phased and final facility closure. All assumptions used in developing the cost estimates shall be justified.

Note: Municipal solid waste combustors must also have the air management permits required under s. 144.391, Stats.

(4) OPERATIONAL REQUIREMENTS. No person may operate or maintain a municipal solid waste combustor except in conformance with the following minimum requirements, unless an exemption is granted by the department in writing:

(a) The municipal solid waste combustor shall be situated, equipped, operated and maintained in a nuisance-free manner.

(b) Adequate shelter and sanitary facilities shall be available for facility personnel.

(c) A sign shall be prominently posted at the entrance to the facility which indicates name, license number, hours of operation, necessary safety precautions and any other pertinent information.

(d) All incoming solid waste shall be confined to the designated storage area.

(e) All solid waste, except residue, shall be stored in conformance with s. NR 502.05 (5) or (6).

(f) Dust shall be controlled in all waste handling areas.

(g) Permanent records shall be maintained in accordance with sub. (7).

(h) Appropriate fire-fighting equipment shall be available in the storage and charging areas and elsewhere as needed.

(i) Arrangements shall be made with the local fire protection agency to provide adequate emergency fire-fighting forces.

(j) Means of communication with emergency facilities shall be provided.

(k) Adequate equipment shall be provided and used to clean the waste storage, waste handling, waste charging, and ash handling areas as may be required in order to maintain the plant in a sanitary condition.

(l) The charging openings as well as all equipment throughout the plant shall be provided with adequate safety equipment.

(m) The municipal solid waste combustor shall be designed and operated so that it will not cause a nuisance because of the emission of noxious odors, gases, contaminants or particulate matter or exceed emission limitations established by state air management rules in chs. NR 400 to 499.

(n) Residue shall be disposed of at a solid waste facility licensed by the department to accept the material or be handled by an alternate method approved in writing by the department. Approval shall be issued on a case-by-case basis after review of the information contained in sub. (6).

(o) All wastewater from the combustor shall be discharged into a sanitary sewer or other system approved in writing by the department.

(p) Upon completion of construction of a new municipal solid waste combustor and at least 10 days prior to initial operation, the department shall be notified to allow inspection of the combustor both prior to and during any performance tests and initial operation.

(q) Open burning of solid waste may not be conducted.

(r) An approved alternative method shall be used for solid waste disposal during any time that the municipal solid waste combustor is inoperable.

(s) The incoming waste shall be screened to eliminate unacceptable material from entering the municipal solid waste combustor such as hazardous waste, asbestos, explosive materials or other materials as defined in sub. (9).

(t) Residue storage at the municipal solid waste combustor shall be in accordance with the following:

1. The residue shall be wetted at all times during storage to prevent dust emissions. The facility may use alternative methods of dust control that are approved by the department prior to implementation. Provisions shall be made to prevent the release of residue into the air in the residue handling areas.

2. The storage area shall have an impervious surface on which the residue is stored and a collection system for any liquids coming into contact with the residue. All liquid that comes into contact with the residue which is not used as makeup water in the quench tank shall be collected and treated at a wastewater treatment plant approved by the department.

3. Access to the temporary storage areas shall be restricted to authorized personnel only. Fencing or other means of control acceptable to the department shall be maintained around the storage facility.

(u) All treatment or mixing of residue shall be performed in a manner which controls air and water emissions.

(v) Treatment or mixing of residue at a facility other than at the municipal solid waste combustor shall require a processing license under s. NR 502.08.

(5) RESIDUE SAMPLING. (a) The owner or operator shall collect representative samples of residues produced by burning municipal solid waste for characterization required in sub. (6). The samples shall be collected over a minimum one-week period every quarter within 2 weeks of March 15, June 15, September 15 and December 15, except as provided in par. (f). Minimum 2 gallon volume samples shall be obtained hourly by a procedure approved by the department. The hourly samples shall be composited daily. Each daily sample shall then be composited together at the end of the testing period to result in a minimum of one representative sample. Compositing shall be performed in a manner acceptable to the department.

(b) Unless the residues are mixed as part of an internal, mechanical process, air pollution control equipment residue samples shall be collected separately from bottom-ash samples. If the mixing is part of an internal mechanical process, then the sampling shall be performed after the residue is mixed. If an ash treatment process occurs at the municipal solid waste combustor, then the sample shall be collected after treatment.

(c) For a municipal solid waste combustor where the compositing methods established in par. (a) would be impractical, alternatives may be approved by the department.

(d) An adequate volume of each representative composite sample to be tested shall be retained to allow for confirmatory testing if any of the levels established under sub. (6) (g) are exceeded.

(e) In addition to the routine quarterly sampling required in par. (a), representative samples shall be collected within 2 weeks of initial startup and shakedown, and after any significant changes in plant design, operation or waste input, if the changes are expected to cause an increase or decrease in the number or concentrations of the residue parameters listed in sub. (6), Table 1. The operator shall identify, and submit to the department, the changes made and the anticipated effect the changes will have on the residues.

(f) An operator of a municipal solid waste combustor that has a design capacity of less than 10 tons per day shall:

1. Collect representative samples over a minimum one-week period every year within 2 weeks of June 15.
2. Collect representative samples quarterly to test for the 8 heavy metal parameters listed in sub. (6) (g) and within the 2 weeks of initial startup and shakedown and after any significant changes in plant design, operation or waste input, if the changes are expected to cause an increase or decrease in the number or concentrations of the listed parameters in the residue. The operator shall identify, and submit to the department, the changes made and the anticipated effect the changes will have on the residues. The sample volume collected and compositing procedures shall comply with par. (a).
3. Comply with all of the other provisions of this section.

(6) RESIDUE CHARACTERIZATION. (a) An operator of a municipal solid waste combustor with a design capacity of 10 tons per day or greater shall test its residue quarterly the first year after an approval has been issued. After the first year of quarterly testing the residues shall be tested on an annual basis, except as provided in par. (m). The testing program listed in Table 1 shall be applied to all samples collected as required by subs. (5) (a) to (d). The department may require dioxin and foran testing, if circumstances warrant. Test results shall be submitted to the department with the annual report specified under sub. (8).

(b) An operator of a municipal solid waste combustor with a design capacity of less than 10 tons per day shall:

1. Test residue samples collected under sub. (5)(f) in accordance with the testing program in par. (g).
2. Test its residue annually beginning the first June after an approval has been issued using the testing program listed in Table 1 for all samples collected under required by sub. (5)(f). The department may require dioxin/furan testing, if circumstances warrant.
3. Submit test results to the department with the annual report specified under sub. (8).
4. Comply with all of the other provisions of this section.

(c) A leachate sample from the monofill where the residue is disposed of may be substituted for the EPA Method 1312 leach procedure listed in Table 1, Section III, after the initial 4 rounds of testing. The leachate sample shall be tested for all of the parameters listed under the EPA Method 1312 leach requirements in Table 1, Section III, unless a reduction in the number of parameters tested for has been approved by the department. The municipal solid waste combustor using the leachate substitute shall be responsible for the testing. If significant levels of any of the listed parameters are detected in the leachate tested from a monofill that receives multiple sources of residue, the department may require all contributing municipal solid waste combustors to perform leach testing of their residue using EPA Method 1312.

Note: A copy of this test method can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies of this test method are also available for inspection at the offices of the revisor of statutes and the secretary of state. Personal copies can be obtained from the U.S. environmental protection agency, office of solid waste, 401 m street sw, Washington D.C. 20460.

(d) The operator of the municipal solid waste combustor may apply to the department at the end of the initial 4 rounds of testing for elimination of

those parameters listed in Table 1, Section II which do not appear in its residues at significant levels.

(e) The provisions of this subsection do not supersede the testing requirements for the 8 heavy metal parameters listed in par. (g) using the toxicity characteristic leaching procedure, EPA Method 1311.

(f) During the scheduled testing period, if any parameter in the bulk analysis is not detected at or above the specified detection limits, then that parameter may be eliminated from further leach testing for that test period.

(g) An operator of a municipal solid waste combustor shall test its residue for the parameters listed in this paragraph quarterly and within 2 weeks of completing initial startup and shakedown, and after any significant changes in plant design, operation or waste input that significantly affects or changes the residue characteristics by using the toxicity characteristic leaching procedure, EPA Method 1311. Multiple samples may be tested separately and the results combined to obtain an arithmetic mean for each parameter. The operator shall immediately notify the department if test results indicate that any of the following limits are exceeded:

1.	Arsenic (As)	5.0 mg/l	5.	Lead (Pb)	5.0 mg/l
2.	Barium (Ba)	100.0 mg/l	6.	Mercury (Hg)	0.2 mg/l
3.	Cadmium (Cd)	1.0 mg/l	7.	Selenium (Se)	1.0 mg/l
4.	Chromium (Cr)	5.0 mg/l	8.	Silver (Ag)	5.0 mg/l

Note: Copies of these test procedures can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies of these test methods are also available for inspection at the offices of the revisor of statutes and the secretary of state. Personal copies can be obtained from the U.S. environmental protection agency, office of solid waste, 401 m street sw, Washington D.C. 20460.

(h) If any of the limits in par. (g) are exceeded, the operator may elect to complete confirmatory testing on the retained sample within 2 weeks of receiving the initial results. If the operator elects to perform the confirmatory testing, only the constituents exceeding the limits will require testing.

(i) If any of the limits in par. (g) are exceeded and confirmatory testing under par. (h) is not completed, or if the test results of par. (h) confirms the exceedance of the limits for the parameters listed in par. (g), the residue may be treated to reduce leachable constituents below the threshold values, prior to disposal, or the residue shall be managed in accordance with chs. NR 600 to 690 until a significant change to the facility design, operation or waste input can be demonstrated which produces consistent test results that meet the specified limits.

(j) If a significant change to the waste input can be demonstrated, the operator shall confirm this change by completing confirmatory testing of one new sample taken in accordance with sub. (5). In cases where the contributing waste input cannot be isolated, consistent test results meeting the specified limits shall be obtained from monthly testing according to the requirements of par. (g) for a minimum of 3 months. Only the constituents exceeding the limits in par. (g) will require retesting under this provision.

(k) If none of the limits in par. (g) are exceeded or the confirmatory testing defined in par. (h) is below the specified limits in par. (g), the

residue may be disposed of in a single composite lined monofill in accordance with the provisions of s. NR 504.11(2)(a). In cases where limits in par. (g) were exceeded during initial testing, but were not exceeded in the confirmatory testing, additional testing in accordance with par. (g) shall be performed monthly for a minimum of 3 months to confirm that the initial exceedances were not representative of the residue characteristics. Only the constituents exceeding the limits require retesting under this provision. If there are any exceedances during this 3 month period, the residue shall be managed in accordance with the provisions of chs. NR 600 to 690.

(l) All treated residue shall be tested according to the requirements of this section.

(m) The department may require different testing frequency and parameters, if circumstances warrant.

TABLE 1. PARAMETERS AND DETECTION LIMITS

I. Toxicity Characteristic Leaching Procedure EPA Method 1311: (quarterly)

Arsenic (As)	0.05 mg/l	Barium (Ba)	1.0 mg/l
Cadmium (Cd)	0.01 mg/l	Chromium, Total (Cr)	0.05 mg/l
Lead (Pb)	0.05 mg/l	Mercury (Hg)	0.002 mg/l
Selenium (Se)	0.01 mg/l	Silver (Ag)	0.05 mg/l

II. Bulk chemical analysis:

Aluminum (Al)	0.1 mg/kg	Antimony (Sb)	1.0 mg/kg
Arsenic (As)	0.5 mg/kg	Barium (Ba)	5.0 mg/kg
Boron (B)	1.0 mg/kg	Cadmium (Cd)	0.5 mg/kg
Calcium (Ca)	1.0 mg/kg	Chromium, Total (Cr)	0.4 mg/kg
Iron (Fe)	0.1 mg/kg	Lead (Pb)	0.6 mg/kg
Magnesium (Mn)	0.02 mg/kg	Mercury (Hg)	0.04 mg/kg
Potassium (K)	0.01 mg/kg	Selenium (Se)	0.6 mg/kg
Silver (Ag)	1.0 mg/kg	Sodium (Na)	1.0 mg/kg
Zinc (Zn)	2.0 mg/kg	Total Organic Carbon (TOC)	1.0 mg/kg
		Total Organic Halogen (TOX)	0.25 mg/kg

III. Synthetic Precipitation Leach Test EPA Method 1312.

A. All of the parameters detected in the bulk chemical analysis, reported in mg/l.

Note: Copies of these test procedures can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies of these test methods are also available for inspection at the offices of the revisor of statutes and the secretary of state. Personal copies can be obtained from the U.S. environmental protection agency, office of water regs & std's, 401 m street sw, Washington D.C. 20460.

B.

Alkalinity	1.0 mg/l	Chemical Oxygen Demand (COD)	5.0 mg/l
Chloride	4.0 mg/l	Fluoride	4.0 mg/l
pH	0.1 units	Specific Conductance	10.0 mhos/cm
Sulphate	1.0 mg/l	Total Dissolved Solids (TDS)	5.0 mg/l
Total Hardness	1.0 mg/l		

IV. Physical test:

Dry Bulk Density	Percent Combustible
Moisture Content as Generated	Grain Size Analysis:

Sieve test
Hydrometer test

(7) RECORD KEEPING. Operators of municipal solid waste combustor facilities shall maintain a record at the facility available for inspection by department staff during normal business hours. Records shall be compiled on a monthly basis, at a minimum. The department may approve alternative record-keeping programs. The following shall be included in the records:

(a) The hours of plant operation, combustion temperatures and residence time.

(b) The weight of material coming into the facility.

(c) The weight of material rejected by the facility and where it was sent. Where exact weights are not available, estimates shall be made of the weight of rejected hazardous waste, lead-acid batteries, the material sent to a recycler and the material sent to a landfill.

(d) The weight of residue produced and where it was sent. Where exact weights are not available, the volume of residue produced shall be recorded.

(e) A list of the states of origin of solid waste accepted at the facility in the previous year and the amount, by weight, originating in each state.

(f) The recording person's initials and the date of each entry.

(8) ANNUAL REPORT. (a) The facility operator shall compile and submit to the department the records defined in sub. (7) as an annual report.

(b) The report shall cover the calendar year and be submitted no later than April 1 of the following year.

(c) The annual report shall include the results of all testing required under sub. (6) for the previous year.

(9) WASTE SCREENING. (a) The operator or designated agent of a municipal solid waste combustor shall screen the incoming waste to eliminate the materials identified in pars. (b) to (d), from entering the facility.

(b) The screening of materials from the combustion process may be accomplished at the facility or by the contributors of the waste from the area served by the facility that have an effective recycling program. Additional restrictions to waste acceptance for some facilities may exist as specified in s. 159.07, Stats. Alkaline batteries and similar heavy metal sources should not be accepted at municipal solid waste combustor facilities.

(c) Hazardous waste as defined by s. NR 600.03 (87) may not be accepted at a municipal solid waste combustion facility. This includes waste produced by small quantity generators. Household hazardous waste shall be excluded if separated from residential waste. Household hazardous waste may be accepted if not separated from residential waste.

(d) Major appliances, large metal objects, lead/acid batteries, building materials, and noncombustible furniture, office and farm equipment may not be fed into a municipal solid waste combustor.

(e) Waste oils may be burned only in compliance with state and federal regulations.

(10) WASTE SCREENING PLAN. The operator of a municipal solid waste combustion facility shall evaluate and submit to the department a waste screening and handling plan that contains the following:

(a) Procedures for limiting the items listed in sub. (9) (c) and (d) from entering a combustor.

(b) Identification of other items that will not be accepted by the combustor due to heavy metal content or other reasons.

(c) Procedures for handling and disposing of screened items.

(d) Procedures and authority for enforcement of its requirements.

(e) The plan may include the effective recycling program under s. 159.11, Stats., developed by each responsible unit or units served by the municipal solid waste combustor. Other waste reduction plans, such as medical waste reduction plans, may be included where appropriate.

(f) No municipal solid waste combustion facility may begin initial operation or continue operating unless a waste screening and handling plan under this section has been approved by the department.

(11) OPERATOR QUALIFICATIONS. The municipal solid waste combustion facility shall be operated by personnel meeting the operator qualification requirements established under s. 144.31 (3), Stats.

SECTION 97. NR 503 is created to read:

Chapter NR 503

ONE TIME DISPOSAL LANDFILLS, SMALL SIZE CONSTRUCTION AND DEMOLITION WASTE LANDFILLS, AND INTERMEDIATE SIZE CONSTRUCTION AND DEMOLITION WASTE LANDFILLS

NR 503.01 PURPOSE. The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally accepted solid waste management procedures are practiced in this state and to outline the requirements regarding approval and operational requirements for one time disposal, small size construction and demolition waste landfills, and intermediate size construction and demolition waste landfills. This chapter is adopted under ss. 144.43 to 144.47 and 227.11, Stats.

NR 503.02 APPLICABILITY. (1) Except as otherwise provided, this chapter applies to all one time disposal landfills, small size construction and demolition waste landfills, and intermediate size construction and demolition waste landfills. This chapter does not apply to hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to 690, and metallic mining operations as defined in s. 144.81 (5), Stats., and regulated under ch. NR 182. Construction and demolition landfills which have a design

capacity greater than 250,000 cubic yards are regulated under chs. NR 500 and 504 to 536.

(2) This chapter does not apply to the design, construction or operation of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes approved under s. 144.04, Stats., or permitted under ch. 147, Stats., nor to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 144.04, Stats., or permitted under ch. 147, Stats., except for facilities used for the disposal of solid waste.

NR 503.03 DEFINITIONS. The terms used in this chapter are defined in s. NR 500.03.

Note: Section NR 500.03(50) defines "construction and demolition waste" to mean solid waste resulting from the construction, demolition or razing of buildings, roads and other structures.

Note: Construction and demolition waste typically consists of concrete, bricks, bituminous concrete, wood, glass, masonry, roofing, siding and plaster, alone or in combinations. It does not include waste paints, solvents, sealers, adhesives or similar materials.

Note: Section NR 500.03(117) defines "intermediate size construction and demolition waste landfill" to mean a landfill with a design capacity of at least 50,000 cubic yards but no more than 250,000 cubic yards and used for the disposal of only construction and demolition wastes.

Note: Section NR 500.03(158) defines "one-time disposal" to mean the disposal of no more than 10,000 cubic yards of approved types of agricultural or demolition solid waste on a one-time basis over a project life of not more than 6 months. Examples are the disposal of concrete, brick, stone, asphalt, wood, trees, logs, brush and material from demolished buildings.

Note: Section NR 500.03(213) defines "small size construction and demolition waste landfill" means a landfill with a design capacity of 50,000 cubic yards or less and used for the disposal of only construction and demolition wastes.

NR 503.04 LOCATIONAL CRITERIA AND PERFORMANCE STANDARDS. (1) GENERAL. An applicant for an approval of a new landfill or approval of an expansion of an existing landfill regulated under this chapter shall demonstrate to the department that the proposed landfill will comply with all of the applicable locational criteria of this section for which no exemption has been granted. Exemptions to sub. (2) (a), (b), (d), (e), (f) and (g) may be granted only upon demonstration by the applicant of circumstances which warrant an exemption. An exemption from compliance with sub. (2) (c) may not be granted.

(2) LOCATIONAL CRITERIA. No person may establish, construct, operate, maintain or permit the use of property for any landfill regulated under this chapter where waste handling and disposal activities occur within the following areas:

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

(b) Within 300 feet of any navigable river or stream.

(c) Within a floodplain.

(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, unless the landfill is screened by natural objects, plantings,

fences or other appropriate means so that it is not visible from the highway or park.

(e) Within 10,000 feet of any airport runway end designed for or planned to be designed for and used by turbojet aircraft or within 5,000 feet of any airport runway end designed for and used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created. This criterion is applicable only when the landfill will be used for handling putrescible waste outside of an enclosed building.

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

(g) Within 100 feet of the landfill property boundary.

(3) PERFORMANCE STANDARDS. No person may establish, construct, operate, maintain or permit the use of property for any landfill regulated under this chapter within an area where there is a reasonable probability that the landfill will cause:

(a) A significant adverse impact on wetlands as provided in ch. NR 103.

(b) A significant adverse impact on critical habitat areas.

(c) A detrimental effect on any surface water.

(d) A detrimental effect on groundwater quality or an effect resulting in or exacerbating attainment or exceedance of any preventive action limit or enforcement standard at a point of standards application as defined in ch. NR 140. For the purposes of design, the point of standards application is defined by s. NR 140.22 (1).

(e) The migration and concentration of explosive gases in any landfill structures, excluding any leachate collection system or gas control or recovery system components or in the soils or air at or beyond the landfill property boundary in excess of 25% of the lower explosive limit for the gases at any time.

(f) The emission of any hazardous air contaminant exceeding the limitations for those substances contained in s. NR 445.04 or 445.05.

NR 503.05 LICENSING EXEMPTION. No person may construct, operate or maintain a one time disposal landfill for agricultural or construction and demolition waste, a small size construction and demolition waste landfill, or an intermediate size construction and demolition waste landfill unless the person has obtained a written plan approval from the department, except as otherwise provided in s. NR 500.08. Facilities approved under this chapter are exempt from the licensing requirements of ss. 144.44 to 144.47, Stats.

NR 503.06 AFFIDAVIT OF SITE REGISTRY. Unless otherwise specified, no person may operate or maintain a landfill regulated under this chapter unless the person has submitted on form 4400-67 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. Landfills which were in existence prior to the effective date of this rule ... [revisor inserts date] and continue to operate after this date shall submit an affidavit of site

registry within 90 days after the effective date of this rule ... [revisor inserts date].

Note: This form may be obtained from the department of natural resources, bureau of solid & hazardous waste management, 101 s. webster street, natural resources building, Madison, Wisconsin 53707.

NR 503.07 INITIAL SITE INSPECTION. (1) INSPECTION REQUEST. Any person intending to establish a new landfill, an expansion of an existing landfill regulated under this chapter, or a non-commercial 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 503.04.

(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. NR 500.05 (5) to (8).

Note: One copy of the information required by this section shall be submitted to the department's field office responsible for the area in which the facility is proposed to be located and one copy shall be submitted to the department's solid waste management section in Madison.

(3) DEPARTMENT RESPONSE. The department shall conduct an initial site inspection within 22 business 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 days of completing the inspection. A favorable evaluation under this section does not guarantee a favorable initial site report opinion.

(4) CONTENTS OF INSPECTION REQUEST FOR A PROPOSED SOLID WASTE LANDFILL. An initial site inspection request for a proposed new landfill or an expansion of an existing landfill regulated under this chapter shall include the following:

(a) A cover letter identifying the applicant and authorized contact, type of landfill and operation being proposed, property ownership, location by quarter - quarter section and present land use.

(b) A letter from the department's bureau of endangered resources identifying the presence of any critical habitat areas and state or local natural areas within one mile of the proposed landfill in accordance with ch. NR 29.

(c) A letter from the Wisconsin state historical society identifying the presence of any historical, scientific or archaeological areas within the vicinity of the proposed landfill in accordance with s. 44.40, Stats.

(d) An enlarged 7.5 minute USGS map or other base map having a minimum scale of 1" = 500 feet. Map scale and contour intervals shall be revised when necessary to sufficiently show relief, surface waters, floodplains, existing

land use conditions and all water supply wells and residences located within one mile of the property boundaries of the proposed landfill.

(e) A preliminary identification of all potential conflicts with the locational criteria and performance standards specified in s. NR 503.04.

(5) CONTENTS OF INSPECTION REQUEST FOR A SOIL BORROW SOURCE FOR A SPECIFIC SOLID WASTE LANDFILL. An initial site inspection request for a non-commercial soil borrow source designated to be used in the construction, operation, or closure of a specific landfill shall include the following:

(a) The information listed in sub. (4)(a), (b), (c) and (d).

(b) A preliminary identification of all potential effects on wetlands, critical habitat areas or surface waters.

NR 503.08 ONE TIME DISPOSAL LANDFILL. (1) PLAN OF OPERATION REQUIREMENTS. Any person intending to establish a one time disposal landfill shall submit a plan of operation to the department which contains a description of the need for the landfill and the potential environmental impacts. The proposal shall address the alternatives considered, including reuse, recycling and disposal at a licensed solid waste landfill, the reasons why other economically feasible alternatives are not available, and the potential environmental impacts. The department may deny an application for a one time disposal landfill if other reasonable alternatives are available. No person may establish, construct operate or maintain a one time disposal landfill prior to obtaining approval from the department of a plan of operation. The plan of operation shall contain all of the following information unless the department waives specific requirements in writing. The department may require any additional information if it determines that the information is necessary to complete the review of the project.

(a) The general information requirements of s. NR 503.07(2).

(b) Name, address and telephone number of landfill owner and operator.

(c) Total acreage of property and landfill.

(d) Landfill life, capacity, types and sources of material to be disposed.

(e) The following geotechnical information based upon 2 test pits or borings per acre installed at a minimum of 10 feet below the base of the disposal area:

1. Depth to groundwater if within 10 feet of the base of the disposal facility.
2. Boring logs identifying USCS classification of each major soil unit encountered during installation of the soil borings or test pits. The department may require representative samples be taken and analyzed for grain size distribution.

(f) Alternatives to the proposed landfill which may be available such as licensed landfills, transfer facilities, recycling facilities or other licensed processing facilities. If reasonable alternatives are available, then the applicant shall provide adequate justification why the alternatives are not feasible.

(2) DESIGN AND OPERATIONAL REQUIREMENTS. No person may construct, operate or maintain a one time disposal landfill except in conformance with the following minimum requirements and with the terms and conditions of the plan approval for the landfill:

(a) The landfill life may not exceed 6 months.

(b) The design capacity of the landfill may not exceed 10,000 cubic yards.

(c) The landfill shall be operated, maintained and closed in a nuisance-free manner. Screening shall be provided from all residences within ¼ mile unless this requirement is waived in writing by the department.

(d) A minimum 10-foot separation distance from the base of the landfill to the water table or bedrock shall be maintained unless the disposal facility is in a clay soil environment.

(e) Access to the landfill shall be restricted through the use of fencing or other means approved by the department.

(3) WASTE SCREENING PLAN. The department may require development and implementation of a waste screening plan to prevent the disposal of waste material not approved for a one time disposal landfill.

(4) ENVIRONMENTAL MONITORING. The department may require installation of groundwater and leachate monitoring wells or other devices, groundwater and leachate quality sampling and analysis programs, gas monitoring and provisions to protect against detrimental effects of leachate and gas migration from any one time disposal landfill.

(5) CLOSURE REQUIREMENTS. Any person who operates or maintains a one time disposal landfill, or who permits the use of property for that purpose shall close the landfill within 6 months after disposal begins in the following manner:

(a) The entire area previously used for disposal purposes shall be covered with at least 2 feet of compacted earth sloped adequately to allow storm water runoff. A specific soil type may be required by the department for this 2-foot layer. Fine grain soils shall be utilized to minimize infiltration unless this requirement is waived in writing by the department. Top slopes shall be no less than 2%. Side slopes shall be no steeper than 33%.

(b) Storm water shall be diverted to limit the potential for erosion and sedimentation. Wherever possible, storm water shall be diverted around previously filled areas. Where it is necessary to divert drainage over previously filled areas, the department may require that drainage be conveyed by clay lined drainage swales having a minimum thickness of 2 feet.

(c) The finished surface of the filled area shall be covered with a minimum of 6 inches of topsoil.

(d) Seeding, fertilizing and mulching of the finished surface shall be accomplished in accordance with the landfill's final use. The seed type and amount of fertilizer shall be selected depending on the type and quality of topsoil and compatibility with native vegetation.

(e) Following closure of the one time disposal landfill, the landfill shall be inspected and maintained by the owner or operator.

(6) EXPANSIONS. Any person who wishes to expand an existing one time disposal landfill shall comply with all provisions of this section. The department shall interpret expansions to include any new landfill within ¼ mile of an existing landfill. The combined design capacity of the original one time disposal landfill and all subsequent expansions may not exceed 10,000 cubic yards. The department may deny any request for an expansion if, in the department's opinion, the disposal of additional waste may result in a detrimental effect on surface or groundwater or cause or exacerbate an attainment or exceedance of any standard in ch. NR 140. The local geology, hydrogeology and topography shall be considered in this decision.

NR 503.09 SMALL SIZE CONSTRUCTION AND DEMOLITION WASTE LANDFILLS. (1) PLAN OF OPERATION REQUIREMENTS. No person may establish, construct, operate or maintain a small size construction and demolition waste landfill prior to obtaining approval from the department of a plan of operation. Any person intending to establish or construct a small size construction and demolition waste landfill for disposal of no more than 50,000 cubic yards of material shall submit a plan of operation to the department for approval which contains the information specified in this subsection unless the department waives specific requirements in writing. The proposal shall address the alternatives considered, including reuse, recycling and disposal at a licensed solid waste landfill, the reasons why other economically feasible alternatives are not available, and the potential environmental impacts that may occur. The department may require the submittal of any additional information, if it determines that the information is necessary to complete the review of the project. At a minimum, the following information shall be included in the plan of operation:

(a) General landfill information which identifies the project title; name, address and telephone number of the primary contact persons and consultants; present property owner; proposed landfill owner and operator; landfill location by quarter-quarter section; total acreage of property and landfill; proposed landfill life and disposal capacity; estimated types, quantities and sources of waste to be disposed; anticipated covering frequency; equipment to be used; and mode of operation.

(b) Geotechnical information shall be obtained by drilling a minimum of 5 soil borings which extend to 25 feet below the anticipated landfill base grade or to bedrock, whichever is less unless an alternative geotechnical program is approved by the department in writing. The borings shall be distributed on a grid pattern throughout the area. A minimum of 3 representative samples shall be taken from each major soil layer encountered during installation of the borings and shall be analyzed for grain size distribution and classified according to the unified soil classification system.

(c) Water table observation wells shall be installed to adequately define the water table surface and hydraulic gradients. At a minimum, 3 water table observation wells shall be installed. The well locations shall be chosen in an effort to place one well upgradient and the other 2 downgradient at the proposed landfill.

(d) The results of the subsurface investigations shall be summarized using a series of geologic sections which connect the soil borings performed. Each

section shall show present topography, borings, wells, major soil layers, water table and bedrock.

(e) Topographic survey information shall be displayed on a plan sheet showing the proposed fill area, property boundaries, proposed landfill boundaries, soil borings performed and wells installed. The minimum scale shall be 1" = 200' with a maximum contour interval of 5 feet. This map may consist of a blow-up of a USGS map, with supplemental information added as appropriate. Drainage patterns shall be shown. In addition, the plan sheet shall show all roads adjacent to or near the proposed landfill, and all homes, water supply wells, floodplains, and wetlands or water courses within ¼ mile of the landfill.

(f) A topographic plan sheet showing the proposed base grades and the sequence of filling shall be prepared. A contour interval of 2 feet shall be used and all drainage patterns shown.

(g) A topographic plan sheet showing the proposed final grades shall be prepared.

(h) Cross-sections, both north-south and east-west, shall be drawn through the fill area delineating present topography, soils information, groundwater, base grades and final contours. This information may be shown on the geologic cross-sections required in par. (d) if clarity is not compromised.

(i) An environmental monitoring plan shall be proposed which, at a minimum, complies with the requirements of sub. (5).

(j) An appendix shall be prepared which includes all raw data such as boring logs, soil tests, well construction data and water level measurements; a plat map of the area; a soil conservation service soil map and interpretation and references.

(2) WASTE SCREENING PLAN. (a) The owner or operator of a small size construction and demolition waste landfill shall develop and submit to the department for approval a waste screening and handling plan that contains the following:

1. Identification of items that may not be accepted by the landfill.
2. Procedures for limiting waste which is not approved for disposal from entering the landfill.
3. Procedures for inspecting waste loads.
4. Procedures for handling and disposing of screened items.
5. Procedures for enforcement of the waste screening requirements.

(b) The owner or operator of a small size construction and demolition waste landfill which began initial operation prior to the effective date of this rule ... [revisor inserts date] shall submit a waste screening and handling plan to the department no later than 3 months after the effective date of this rule ... [revisor inserts date] for approval. Small size construction and demolition waste landfills which did not begin operation prior to the effective date of this rule ... [revisor inserts date] may not accept waste until a waste screening plan is approved in writing by the department.

(3) DESIGN AND OPERATIONAL REQUIREMENTS. Any person operating a small size construction and demolition waste landfill shall meet the following operational

requirements, and comply with the terms and conditions of the plan approval for the landfill.

(a) The landfill shall be operated, maintained and closed in a nuisance-free manner. Screening shall be provided from all residences within ¼ mile of the waste handling areas unless this requirement is waived in writing by the department.

(b) A minimum 10-foot separation distance from the base of the landfill to the water table or bedrock shall be maintained unless the disposal facility is in a clay soil environment.

(c) Access to the landfill shall be restricted through the use of fencing or other means if approved by the department.

(d) The landfill shall be operated by personnel who meet the operator certification requirements established under ch. NR 524.

(4) CONSTRUCTION DOCUMENTATION REPORT. The department may require the owner or operator to submit a construction documentation report for any small size construction and demolition waste landfill. When a documentation report is required it shall be prepared in accordance with the department's plan approval and s. NR 500.05. Operation of the landfill may not begin until the report is approved in writing by the department.

(5) ENVIRONMENTAL MONITORING. The owner or operator of a landfill approved under this section shall establish an environmental monitoring program under this subsection. The department may require installation of additional monitoring devices, additions to the groundwater sampling and analysis programs, gas and leachate monitoring and provisions to protect against the detrimental effects of leachate and gas migration. At a minimum, the monitoring program shall include the following:

(a) Water table observation wells shall be installed to adequately define the water table, hydraulic gradients and groundwater quality. At a minimum, 3 water table observation wells shall be installed. The well locations shall be chosen in an effort to place one well upgradient and the other 2 downgradient at the proposed landfill.

(b) Baseline water quality shall be established at all monitoring wells for all the parameters listed in Table 1.

(c) A minimum of 2 samples with at least 30 days between sampling rounds, shall be collected and analyzed and the results shall be submitted with the proposal for constructing the small demolition landfill. Two additional samples, with at least 30 days between sampling rounds, shall be collected and analyzed for any parameters listed in Table 1 which exceeded preventive action limits established in Table 1 of NR 140 during either of the first 2 rounds.

(d) If additional samples are required under par. (c), the results of the 2 additional samples shall be submitted in the construction documentation report for the small demolition landfill.

(e) Collection, handling and analysis of samples shall be performed in accordance with ss. NR 507.16 and 507.17.

TABLE 1

Groundwater Sampling 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

(f) Detection groundwater monitoring shall be established at each monitoring well. Detection monitoring shall begin following the first acceptance of waste. Each well shall be sampled semi-annually and tested for the parameters listed in column 1 of Table 1. All test results shall be submitted to the department in accordance with ch. NR 507.

(6) CLOSURE REQUIREMENTS. Any person who operates or maintains a small size construction and demolition waste landfill, or who permits the use of property for such purposes shall close the landfill within 90 days after disposal ends or when the design capacity is reached, whichever occurs first, in accordance with the approved plan of operation and the following:

(a) The entire area previously used for disposal purposes shall be covered with at least 2 feet of compacted earth sloped adequately to allow storm water runoff. A specific soil type may be required by the department for this 2-foot layer. Fine grain soils shall be utilized to minimize infiltration unless this requirement is waived in writing by the department. Top slopes shall be no less than 2%. Side slopes shall be no steeper than 33%.

(b) Storm water shall be diverted to limit the potential for erosion and sedimentation. Wherever possible, storm water shall be diverted around previously filled areas. Where it is necessary to divert drainage over previously filled areas, the department may require that drainage be conveyed by clay lined drainage swales having a minimum thickness of 2 feet.

(c) The finished surface of the filled area shall be covered with a minimum of 6 inches of topsoil.

(d) Seeding, fertilizing and mulching of the finished surface shall be accomplished in accordance with the landfill's final use. The seed type and amount of fertilizer shall be selected depending on the type and quality of topsoil and compatibility with native vegetation.

(e) Following closure of a small size construction and demolition waste landfill, the landfill shall be inspected and maintained by the owner or operator.

(7) EXPANSIONS. Except as provided under s. NR 503.10(8)(b), any person who wishes to expand an existing small size construction and demolition waste landfill shall comply with all provisions of this section. The department shall interpret expansions to include the establishment of any new landfill within ¼ mile of an existing landfill regulated under this chapter. In no case may the combined design capacity of the original small size construction and demolition waste landfill and all subsequent expansions exceed 50,000 cubic yards. The department may deny any request for an expansion, if in the department's opinion, the disposal of additional waste may result in a detrimental effect on surface or groundwater or cause or exacerbate an attainment or exceedance of any standard in ch. NR 140. The local geology, hydrology, hydrogeology and typography shall be considered in this decision.

(8) INSPECTION FEES. (a) The department may specify in any approval that critical construction steps of a landfill be inspected by the department. The owner or operator shall pay a construction inspection fee of $500.00 per inspection to the department at the time of submittal of a construction documentation report or as specified in the plan approval. A maximum of 4 inspections per major phase of construction may be required.

(b) The owner or operator of a small size construction and demolition waste landfill which begins operation after the effective date of this rule ... [revisor inserts date] shall pay an operation inspection fee to the department in accordance with ch. NR 520, Table 3, prior to beginning initial operation and annually on October 1st of each year. The owner or operator of a small size construction and demolition landfill which was in operation prior to the effective date of this rule ... [revisor inserts date] and continues to operate after the effective date of this rule ... [revisor inserts date] shall pay an operation inspection fee to the department in accordance with ch. NR 520 Table 3, within 90 days after the effective date of this rule ... [revisor inserts date] and annually on October 1st of each year.

(9) FINANCIAL RESPONSIBILITY FOR CLOSURE AND LONG TERM CARE. The department may require that the owner or operator of a landfill approved in accordance with this section provide proof of financial responsibility for closure and long term care of the landfill using methods listed in s. NR 520.06.

(a) The owner or operator of a landfill required to provide financial responsibility in accordance with this section shall submit prior to beginning disposal operations and annually thereafter for the period of active landfill life, proof of financial responsibility to ensure compliance with the closure requirements of the approved report.

(b) The owner or operator of a landfill required to provide financial responsibility in accordance with this section shall provide proof of financial responsibility for the long-term care of the landfill for 40 years after

landfill closure. An owner responsible for long-term care shall submit prior to beginning disposal operations and annually thereafter for the period of active landfill life, proof of financial responsibility to ensure compliance with the long-term care requirements of the approved plan of operation.

(c) Any person acquiring rights of ownership, possession or operation of a landfill approved in accordance with this section shall be subject to all requirements of the plan of operation for the landfill and shall provide any required proof of financial responsibility to the department in accordance with ch. NR 520. The previous owner shall maintain proof of financial responsibility until the person acquiring ownership, possession or operation of the landfill obtains department approval of proof of financial responsibility.

NR 503.10 INTERMEDIATE SIZE CONSTRUCTION AND DEMOLITION WASTE LANDFILLS. (1) PUBLIC NOTIFICATION REQUIREMENTS. No person may establish or construct an intermediate size construction and demolition waste landfill for disposal of more than 50,000 cubic yards but no more than 250,000 cubic yards of material after the effective date of this rule ... [revisor inserts date] unless the following requirements have been met.

(a) The applicant shall publish a public notice in the local newspaper which identifies 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. A copy of the proposed public notice shall be provided to the department office located in the area of the proposed landfill prior to submission to the newspaper for publication.

(b) The applicant shall provide a press release to the local newspaper which includes the information required in par. (a) as well as a description of the proposed operation.

(c) The applicant shall provide individual letters of notification to all landowners and residents located within ¼ mile of the proposed limits of filling which includes the information required in par. (a). This requirement may be satisfied by local zoning notification procedures if all landowners and residents within ¼ mile are contacted.

(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 feet of the proposed waste limits which includes the information required in par. (a).

(e) All of the requirements in this subsection shall be satisfied prior to submitting a plan of operation under sub. (2). Documentation that the requirements have been met shall be provided in the plan of operation.

(2) PLAN OF OPERATION REQUIREMENTS. No person may establish, construct, operate or maintain an intermediate size construction and demolition waste landfill prior to receiving approval from the department of a plan of operation. Any person intending to establish or construct an intermediate size construction and demolition waste landfill shall submit a plan of operation to the department for approval which contains the information specified in this subsection. The proposal shall address the alternatives considered, including

reuse, recycling and disposal at a licensed solid waste landfill, the reasons why other economically feasible alternatives are not available, and the potential environmental impacts that may occur. The report shall adequately characterize site conditions and contain the complete plans and specifications necessary for construction, operation, monitoring, closing and long-term care of the landfill. These plans as approved by the department shall be used for the day-to-day construction, operation and closure of the landfill and shall be presented in a manner that is clear and understandable. The department shall either approve or disapprove the report in writing within 90 days after submission of a complete report. Any proposed changes to the approved report shall be submitted to and approved by the department in writing prior to implementation.

(a) The report shall identify the project title; name, address and phone number of the primary contacts including the proposed landfill's owner and operator and any consultants; present property owner; proposed landfill location by quarter-quarter section; total acreage of the property and proposed limits of filling; proposed landfill life and design capacity; anticipated waste sources, types and characteristics; anticipated volumes of each major waste stream and any seasonal fluctuations taking into account waste reduction, reuse, recycling; anticipated cover frequency; mode of operation; anticipated sub-base, base and final grades; and documentation demonstrating that the requirements of sub. (1) have been satisfied.

(b) The report shall include a discussion of land uses at the proposed landfill location and within at least one mile of the anticipated limits of filling and waste handling areas. A thorough discussion of land uses which may have an impact on the suitability of the property for waste disposal or on groundwater quality shall be included. The report shall address all areas where land use may affect or be affected by the proposed new landfill or a proposed expansion to an existing landfill. The discussions shall be supplemented with land use maps. At a minimum, the report shall specifically address the following items:

1. Landowners whose property is contiguous to the proposed landfill's property boundaries, and all residences within ¼ mile of the anticipated limits of filling, shall be identified and located on a map. This information may be presented on a plat map unless sufficient detail cannot be shown. However, any changes in ownership shown on the plat map shall be noted.
2. A discussion of land use zoning shall be included. Particular attention shall be given to areas where zoning variances will be required, where agricultural impact statements may be required, or where floodplain, conservancy, shoreland or wetland zoning is designated. A copy of any zoning variances that have been granted or conditions that have been imposed shall be included in the report.
3. A description of the current land uses shall be included. Particular emphasis shall be put on the discussion of known recreational, historical, archaeological, state and local natural areas; national, state and county forest lands; and critical habitat.
4. The existing or proposed transportation routes and access roads including any weight restrictions shall be delineated.

Note: Limits of filling is defined in s. NR 500.03(127).

(c) The report shall include a discussion of the regional setting of the proposed landfill to provide a basis for comparison and interpretation of information obtained through field investigations. This discussion may be limited to information available from publications such as a hydrologic investigations atlas, water supply papers, informational circulars and technical bulletins published by the Wisconsin geologic and natural history survey, the United States geological survey and the natural resources conservation service. The regional setting to be discussed is the area which may affect or be affected by the proposed landfill. At a minimum, the report shall consider the area within one mile of the anticipated limits of filling. The discussions shall be supplemented with available regional bedrock and glacial geology maps, USGS topographic maps, NRCS soil maps and regional water table maps. Specifically, the following items shall be discussed:

1. The existing topography including predominant topographic features.
2. The surface water drainage patterns and significant hydrologic features such as surface waters, springs, surface water drainage basins, divides and wetlands.
3. The origin, nature and distribution of bedrock; the origin, texture, thickness and distribution of the unconsolidated units; and the texture and classification of the surficial soils.
4. The depth to groundwater, groundwater flow directions, groundwater divides and aquifers and identification of the aquifers used by public and private wells.
5. Information on groundwater and surface water quality which is available from the USGS, WGNHS, DNR, UW-Extension and regional planning commissions.

(d) The applicant shall perform field investigations to define the subsurface soils, depth to bedrock, type of bedrock, depth to groundwater and groundwater flow direction at the proposed landfill's location. The results of this investigation shall be described in the narrative section of the report. All raw data collected for borings, well construction and borehole abandonment shall be submitted on forms in accordance with s. NR 507.14(5). All raw data for laboratory tests and water level measurements shall be included in the report appendix. At a minimum, the investigations specified in subds. 1. to 4. shall be performed unless an alternative geotechnical investigation program is approved by the department in writing before the geotechnical investigation program for the report is initiated. Documentation of any alternative geotechnical investigation approved by the department and justification for any reductions to the requirements in this section shall be included in the report. At a minimum, the field investigation shall include the following:

1. As specified in Table 2, borings shall be drilled in 5 separate locations for the first 20 or less acres of the anticipated limits of filling and one additional boring shall be drilled for each additional 10 or less acres. All borings shall be extended a minimum of 25 feet below the anticipated sub-base grade. If the boring is located outside the anticipated limits of filling, the applicable sub-base grade is the elevation of the bottom of the anticipated liner system nearest to the borehole. The borings shall be distributed on a grid pattern across the proposed site location and the anticipated limits of filling. All borings shall be located in or within 300 feet of the anticipated limits of filling. Samples shall be collected and retained and boring logs shall be prepared in accordance with s. NR 507.05(2) and (3). Borings not converted to wells shall be abandoned in accordance with ss. NR 141.25 and 507.08.

2. As specified in Table 2, wells shall be installed to adequately define the depth to groundwater and in a configuration that allows groundwater flow direction to be determined.

a. At a minimum, 3 water table observation wells shall be installed for the first 20 or less acres of the anticipated limits of filling and one additional water table observation well shall be installed for each additional 10 or less acres. Based on existing information, the observation wells shall be constructed such that the water table intersects the well screen at all times during the year.

b. At a minimum, in a fine-grained soil environment for each 20 or less acres of the anticipated limits of filling, a piezometer shall be installed adjacent to a water table observation well to create a well nest.

Note: A fine-grained soil environment is defined in s. NR 500.03(86)

c. All wells shall be located no more than 300 feet from the proposed limits of filling and be designed, installed, developed and documented in accordance with ch. NR 141 and ss. NR 507.06, 507.07 and 507.08. Alternative methods of well design and installation which achieve comparable results shall be approved by the department prior to well construction.

Table 2
Minimum Number of Required Borings & Wells

Non-Fine-Grained Soil Environments			
Piezometers	Observation wells	Borings	Area
-	3	5	First 20 or less acres
-	1	1	Each additional 10 or less acres
Fine-Grained Soil Environments			
Piezometers	Observation wells	Borings	Area
-	3	5	First 20 or less acres
-	1	1	Each additional 10 or less acres
1	-	-	Each 20 or less acres

3. 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. The professional geologist or qualified technician who is directly supervised by a professional geologist shall also visually describe and classify all geologic samples.

4. Laboratory and field analyses conducted to identify the specific geologic and hydrogeologic conditions at the proposed landfill's location shall:

a. Include testing a minimum of one representative sample from each major soil unit encountered. Each representative sample shall be analyzed for grain-size distribution using mechanical and hydrometer methods and Atterberg limits as appropriate for the particular type of material and be classified according to the unified soil classification system.

Note: A major soil unit is defined in s. NR 500.03(138).

b. All available groundwater or surface water quality data which has been obtained from sampling at the proposed landfill's location shall be submitted in the report. Any environmental monitoring data included in the report shall be submitted on department forms or on diskette.

(e) Unless an alternative size is approved by the department, the results of the subsurface investigations shall be presented on 24 inch x 36 inch plan sheets as follows:

1. A topographic map of the area within ¼ mile of the anticipated limits of filling shall be submitted showing the anticipated limits of filling, property boundaries, homes, buildings, cultural features, water supply wells, and the location of soil borings and wells. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the topographic map shall also include the location of all borings and wells for the existing landfill. The base map may consist of an enlarged 7.5 minute USGS map or other map having a minimum scale of 1" = 500 feet with contour intervals sufficient to show relief.

2. Geologic cross-sections shall be submitted. For a proposed contiguous, horizontal or vertical expansion of an existing landfill all borings and wells for the existing landfill shall be included on the geologic cross-sections. Where more than one interpretation can be reasonably made when evaluating heterogeneities within the unconsolidated deposits, assume that the heterogeneities are continuous. The following information shall be presented on the geologic cross-sections:

a. A dashed line or question mark for inferred lithostratigraphic boundaries, a number or symbol to label major soil units and a key containing a description of the soil units.

b. The anticipated sub-base, base and final grades for the proposed landfill.

c. All boring logs, the USCS classifications and the geologic origin for each major soil unit.

d. Well construction details shown to scale including the well screen and filter pack length, the location of the upper and lower seals, and stabilized water level elevations measured on the same day. When 2 or more water table observation wells are presented on a cross-section, a line representing the water table elevation shall be drawn. The date the measurements were taken shall be specified in the key.

3. A water table contour map shall be submitted. The map shall be based on stabilized water levels recorded on the same day from all observation wells installed at the proposed landfill's location and show the wells and the measured water level at each well. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the water table contour map shall include the water table observation wells and measured water table elevations at each well for the existing landfill. The topographic map shall be used as a base map. If more than one set of water levels has been taken, the water table contours shall be based on the set of data which indicates the highest water table. Any observed variations in flow direction shall be discussed in the narrative of the report. Inferred contours made beyond the extent of the well field shall be shown with dashed lines.

(f) The report shall include an analysis of the results from the sub-surface investigations, regional geotechnical information, land use information, and include a discussion of the following items:

1. The potential for the proposed landfill to meet the locational criteria and performance standards in s. NR 503.04.
2. A discussion of the geologic environment including those factors which may affect the development, design or operation of the proposed landfill.
3. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the compliance status and performance of the existing landfill shall be evaluated.

(g) The report shall contain a set of engineering plans which are drawn in accordance with ss. NR 500.05(6) and 504.07 to 504.11, and the following requirements. Engineering plans shall be drawn on standard 24 inch by 36 inch plan sheets. If landfill details cannot be shown on standard plan sheets at a 1:100 scale, the engineering plans may be drawn on 30 inch by 42 inch plan sheets. All plan sheets except the title sheet, existing conditions sheet, cross-sections and details sheets shall utilize the existing conditions sheet as a base map. For complex plans, existing conditions within the landfill area may be shown by lighter lines or may be eliminated. At a minimum, the engineering plans shall include the following:

1. A title sheet shall be included indicating the project title, who prepared the plans, the date the plans were prepared, the applicant for whom the plans were prepared, a table of contents, a map showing the location of the landfill within the county or multi-county area, the location of the county or multi-county area within the state and the area to be served.
2. An existing conditions plan shall be included consisting of a detailed topographic map of the proposed landfill and all areas within 1,200 feet of the proposed limits of filling prior to development. The minimum scale shall be 1" = 200 feet with a maximum 2 foot contour interval. The contour interval selected shall be sufficiently small to clearly show surface water flow patterns within and around the landfill. All elevations shall be related to USGS datum. The plan shall identify and define the following:
a. Surface waters including intermittent and ephemeral streams and wetlands.
b. Property boundaries, the proposed landfill boundary and the proposed limits of filling.
c. A north arrow, landfill survey grid, a formula for converting grid locations to the state plane coordinate system and the locations of all existing and proposed survey monuments.
d. Residential and commercial structures and other buildings.
e. Locations of all soil borings, all existing and abandoned groundwater monitoring wells, all public and private water supply wells and the general locations of all known septic system drain fields within 1,000 feet of the landfill area or within 500 feet of any monitoring well.
f. The locations of all other landfills, and all other solid waste facilities for the processing, storage or composting of solid wastes.
g. Utility lines, underground pipelines and electrical lines, access control and other constructed topographic and drainage features.
3. Plan sheets shall be included which depict the sub-base grades, all sub-base appurtenances such as lysimeters or drain pipes and the base grades.
4. Separate plan sheets shall be included to depict the overall landfill area and the limits of liner construction and filling. The plan sheets shall depict the layout and slope of the liner system and leachate collection system including pipes, sumps, riser pipes on interior sideslopes, manholes, trenches, berms, lift stations, permanent storm water control structures, pipe cleanouts and other pertinent structures. Invert elevations shall be provided at any

changes in grade for all leachate and groundwater collection and transfer systems.

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

6. Plan sheets shall be included which depict the features to be constructed for storm water management at the time of initial construction, during phased development, and after closure of the landfill. Plan sheets shall include the locations of sediment basins, drainage ditches, auxiliary sediment traps, and the anticipated extent of cleared ground and stockpiles during each major phase of landfill development. Plan sheets shall include a list of anticipated actions and materials needed for sediment and erosion control.

7. A final topography plan sheet shall be included to indicate the appearance of the entire landfill following closure including surface water drainage features and the location of gas vents and all other penetrations of the final cover.

8. A landfill monitoring plan shall be included to show the location of the design management zone as determined under s. NR 140.22(3) and all devices for the monitoring of leachate quality and quantity, unsaturated zone water quality and flow rate, groundwater quality, surface water quality, gas production, gas migration, and surface settlement.

9. A long-term care plan sheet shall be included showing the topography of the landfill following closure. This plan shall list those items anticipated to be performed during the period of long-term care including the proposed schedule for monitoring and maintenance of the landfill. This information may be included on the final topography plan sheet if clarity is not compromised or reference may be made to the appropriate section of the operations manual and design report.

10. A minimum of 2 cross-sections drawn perpendicular and parallel to the landfill baseline through the major dimensions of the landfill shall be included. These cross-sections shall be drawn on the cross-section plans required under sub. (2)(e)2. The location of the cross-sections shall be illustrated by a reduced scale plan view on each cross-section. Each combined engineering and geologic cross-section shall show:

a. Existing grades.

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

c. Soil borings and monitoring wells which the section passes through or is adjacent to.

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

e. Stabilized water table contours.

f. Leachate collection and monitoring systems.

g. Gas venting or extraction and monitoring systems.

h. Limits of waste filling.

i. Erosion, storm water and sediment control structures.

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

k. The filling sequence or phasing interfaces, and other landfill features.

11. Cross sections shall be included to illustrate all important construction features of the liner, final cover, lysimeters, leachate collection trenches and sumps, liner penetrations, sideslope risers, piping systems for gas and gas condensate and drainage systems for storm water.

12. Detailed plan view sheets shall be included for header lines or drain lines outside the limits of filling, with notations of pipe slope and intersection elevations with appurtenances such as manholes, lift stations and collection tanks.

13. 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 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 waste containment berms between subsequent phases of development.

(h) The report shall contain an operations manual and design section which shall comply with ss. NR 500.05 and 504.05 to 504.11, and, at a minimum, shall contain the following information:

1. A discussion of the considerations and rationale behind design of the discretionary aspects of the major engineering features which are not explicitly required by state or federal regulations. This shall include base grade configuration and relationship to subsurface conditions, liner design, phases of landfill development and closure, traffic routing, storm water management, erosion, and sediment control measures, gas ventilation systems, final cover systems and monitoring systems. Specific attention shall be given to sidewall penetrations, sideslope riser and sump areas, and piping located outside of the limits of filling. In addressing each of the items in this subdivision, the report shall indicate how the anticipated waste types and characteristics influenced the chosen design.

2. A discussion of 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; 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.

3. A description of storm water management at the time of initial construction, during phased development and after closure of the landfill. The report shall include narrative demonstrating compliance with s. NR 504.09. The report shall describe in detail temporary and permanent erosion and sediment control measures and indicate how these measures will accomplish the concepts in s. NR 504.09(1)(b). The report shall include the specifications for design of sediment basins, culverts, drainage ditches, auxiliary sediment traps, and the anticipated extent of cleared ground and stockpiles during each major phase of landfill development. The report shall include a list of anticipated actions and materials needed for sediment and erosion control. The report shall describe a maintenance and follow-up program designed to meet the concepts in s. NR 504.09(1)(b). The report shall include schedules for the following activities: cleaning sediment basins and ditches; seeding and stabilization of

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

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

5. A description of the daily landfill 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; 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 employes. The report shall describe any limitations or operational practices necessary due to the presence of other open or closed landfills, processing facilities, storage facilities, composting facilities, or any other solid waste facilities located on the same property.

6. A description of landfill operations and the development of subsequent phases. This discussion shall define the critical stage of waste disposal for each phase as it relates to the start of construction of subsequent phases. The scheduling of future construction shall take into account the length of the construction season, limitations imposed by weather and season, and the capacity remaining in existing phases such that an orderly transition is maintained. The report shall describe the anticipated construction in each phase for storm water management, monitoring, abandonment of fill areas, and the installation and maintenance of gas and leachate control structures.

7. A description of the waste inspection and rejection procedures, including use of the inspection pad for dumping and inspecting all incoming waste, actions to be taken to reject unacceptable waste, and movement of non-salvageable material from the pad to the landfill. The report shall also describe the procedures for identifying salvageable material and moving it from the inspection pad to the adjacent salvageable material storage area, and schedules for removing salvageable material to markets.

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

9. A proposed long-term care schedule describing the procedures to be utilized for the inspection and maintenance of cover vegetation; storm water control structures; waste or ground surface settlement or siltation; erosion damage; gas and leachate control features; gas, leachate and groundwater monitoring; and other long-term care needs. The report shall include a final use plan for the landfill.

10. 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. References to specifications on the plan sheets shall be described. This may include information such as 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.

11. An explanation of all design calculations to facilitate department review and provide the necessary information on financial responsibility for closure and long-term care of the landfill. The report shall include a discussion of all calculations, such as waste to cover balance computations, base liner and final covering soils materials needs related to available borrow soil volumes, stockpile sizing estimates, shear resistance calculations for geosynthetic materials and soil layers, design of the storm water management system, infiltration and leachate collection and leakage volumes. All calculations shall be summarized with the detailed equations presented in the appendix of the report. References to the appropriate plan sheets, from which variables are obtained for these calculations shall be included in these summaries.

12. A detailed analysis in accordance with ch. NR 520 shall be made of the costs associated with closure of the landfill and of performing each year of long-term care. All assumptions used in developing the cost estimates shall be listed, including sources of the cost estimates and rationale for the selected cost factors. The anticipated operating life and replacement schedule of all engineering design features shall be addressed and reflected in the cost estimates. The proposed methods of establishing proof of financial responsibility for closure and long-term care under ch. NR 520 shall also be specified.

13. An appendix shall be included which lists the references used and includes any additional data not previously presented, supplemental design calculations, material specifications, operating agreements and any miscellaneous agreements such as easements, documents related to long-term care funding and other appropriate information. At a minimum, the appendix of the report shall include the following written agreements:

a. A draft leachate treatment agreement.

b. A signed clay procurement agreement or option for acquisition of the borrow source property for the volumes necessary to construct and close the first major phase of the landfill.

14. Proposed environmental monitoring plan which, at a minimum, complies with the requirements of sub. (7).

(3) DESIGN REQUIREMENTS. Intermediate size construction and demolition waste 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 this subsection unless the department approves an alternate design which provides equal or greater protection.

(a) If the applicant does not complete construction of the first major phase of the landfill within 2 years from the date of the report approval, the applicant shall reapply to the department for approval to construct the landfill. The department may require additional conditions of approval and require redesign of the landfill in accordance with state-of-the-art design criteria.

(b) Except as provided in par. (c), all landfills regulated under this section shall be designed with a clay liner which meets the following requirements:

1. Soil for a clay liner shall meet the following specifications:

a. A minimum of 50% by weight which passes the 200 sieve.

b. A saturated hydraulic conductivity of $1x10^{-7}$ cm/sec or less, when compacted to required moisture contents and densities based on the modified Proctor method, standard Proctor method, or a department-approved line of optimums method.

c. An average liquid limit of 25% or greater with no values less than 20%.

d. An average plasticity index of 12% or greater with no values less than 10%.

2. The separation distance between the seasonal high groundwater table and the bottom of the clay liner shall be at least 10 feet except for zone-of-saturation landfills.

3. The separation distance between the competent bedrock surface and the bottom of the clay liner shall be at least 10 feet.

4. The slope of the clay liner surface toward the leachate collection lines shall be at least 2%.

5. The minimum thickness of the clay liner at all locations shall be 3 feet.

6. The clay liner shall be constructed in the following manner:

a. 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.

b. A sufficient number of passes of the compaction equipment shall be made over each lift of clay to ensure complete remolding of the clay.

c. All clay shall be compacted to 90% modified or 95% standard Proctor density at a moisture content at least 2% 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 clay being placed. As clay placement proceeds, the minimum density and moisture content targets shall be adjusted as necessary. The department may approve alternate methods of determining the quality of clay placement.

7. The slope of the interior sidewalls of a landfill may not exceed 3 horizontal to one vertical nor be less than 5 horizontal to one vertical.

8. The clay liner in adjacent phases shall be keyed together to form a continuous clay seal. This shall be accomplished by excavating steps along the edge of the existing lined phase and overlapping the lifts of clay being placed for the liner of the new phase with the steps in the existing clay liner. A minimum of 4 steps shall be included, with the total width of the spliced area measuring a minimum of 15 feet.

(c) All landfills regulated under this section which are proposed with base grades beneath the groundwater table shall meet the following requirements:

1. The landfill shall be located in a fine-grained soil environment.

Note: Fine grained soil environment is defined in s. NR 500.03(86).

2. The landfill shall meet the requirements in par. (b) 1., 3., 4., 5., 6., 7. and 8.

3. An analysis shall be performed of the effect which groundwater flow may have on uplift of the liner. The analysis shall evaluate the effect of an underdrain or other dewatering system.

(d) All landfills regulated under this section shall be designed with leachate collection systems which incorporate the following design features:

1. 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.

2. The minimum slope on all leachate collection pipes at the base of the landfill shall be a constant 0.5%. The department strongly recommends that greater pipe slopes be utilized whenever possible.

3. The minimum diameter of all leachate collection or transfer pipes shall be 6 inches. Schedule 80 PVC pipe or an approved substitute shall be used.

4. Leachate collection trenches for clay liners shall be designed as rectangular trenches. A geotextile shall be used to line the base and sidewalls of all leachate collection trenches and shall be placed directly over the clay liner. The geotextile shall have a minimum weight of 12 oz/yd^2, and may not be overlapped over the top of the trench.

5. 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 inches, a maximum of 5% of the material which passes the number 4 sieve and 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 so that a minimum of 6 inches of material exists above the top of the pipe and within the trenches. An additional 6 inches of material shall be mounded above the trench. In cases where 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.

6. The sizing of sand, gravel, geotextiles and pipe openings shall be analyzed for control of piping of soil materials. The gradation of sand and gravel, the apparent opening size of geotextiles and the pipe opening sizes shall be selected to achieve a stable and self-filtering structure under all conditions of leachate flow.

7. All leachate collection lines shall have cleanout access points installed on both ends of each line and may not exceed 1200 feet from the end of one cleanout to the toe of the opposite slope.

8. Leachate lines, manholes and other engineering structures may not penetrate the liner in the vertical direction. Leachate transfer lines may penetrate the liner in the horizontal direction only. The number of liner penetrations shall be kept to a minimum.

9. Any leachate line that penetrates a clay liner shall have a 3 foot by 3 foot anti-seep collar placed around it. A minimum of 3 feet of compacted clay, as measured from the pipe, shall be placed around the collar in all directions.

10. All leachate lines transporting leachate out of the landfill shall be constructed with valves so the flow of leachate can be controlled. The valves shall be compatible with the leachate and be capable of being operated from the ground surface.

11. All leachate transfer lines located outside of the clay lined area shall be designed to assure groundwater protection through the use of double-cased pipe or by using another approved secondary containment method. All leachate transfer line piping shall be pressure tested prior to use. Unless otherwise approved by the department, the upslope end of the secondary pipe shall be

sealed and the downslope end shall be open to allow any collected liquid to flow into the manhole.

12. All leachate transfer lines, manholes, lift stations and other structures which transfer or store leachate outside the limits of waste shall be designed as shallow as practical and located far enough from the limits of filling so that excavations associated with repair of these devices would not infringe on the landfill cover system or sidewall liner. Each of these devices shall be constructed above the seasonal high groundwater table unless it is not technically feasible to do so and the design meets the requirements of subd. 11.

13. Leachate collection tanks and manholes shall be designed with a secondary containment system to prevent the discharge of leachate to ground and surface waters in the event of a leak or spill. Means shall be provided to monitor the tank and manholes within the secondary containment system unless other means for leak detection are approved by the department.

14. All leachate collection tanks shall be designed to contain the volume of leachate which is generated by the landfill over a 4 day period and to withstand the soil and liquid loads that will be encountered during installation and use. The installation of the tanks shall follow the recommendations of the consultant and manufacturer.

15. Measures shall be proposed to prevent accidental discharges at the leachate loadout station from entering groundwater or surface water. Unless an alternate method is approved by the department, the leachate loading station shall be paved with a concrete or asphalt pad and sloped to a catch basin to direct all spills back into the leachate holding tank.

16. All manholes and enclosed structures for leachate and gas control systems shall be designed to allow for proper venting and access control.

17. All control systems such as pumps, valves and meters shall be designed to be operated from the ground surface.

18. All leachate and groundwater collection systems shall be designed to accurately monitor the volume of liquid removed by the system.

19. A minimum one foot thick granular drainage blanket shall be placed on top of the clay-lined base and sidewalls. If the drainage blanket contains gravel greater than ¼ inch, then a nonwoven geotextile shall be installed below the drainage blanket. The geotextile shall have a minimum weight of 12 oz/yd^2. The granular drainage blanket shall contain no more than 5% material by weight which passes the number 200 sieve, have a uniformity coefficient of less than 4 for gravel soils and less than 6 for sandy soils, and a hydraulic conductivity which is greater than or equal to $1x10^{-2}$ cm/sec at the anticipated field density.

20. All major horizontal clay lined phases above the saturated zone shall be designed with a collection basin lysimeter to monitor the unsaturated zone.

(e) All landfills regulated under this section shall be designed with final cover systems to minimize leachate generation by limiting the amount of percolation through the cap system, reduce landfill maintenance by stabilizing the final surface through design of compatible slopes and establishment of vegetation, account for differential settlement and other stresses on the capping layer, minimize the climatic effects of freeze-thaw and desiccation on the clay capping layer of the final cover system, and provide removal of leachate and venting of gas from those landfills which accept wastes with a high moisture content or which readily biodegrade. Unless it is established to the satisfaction of the department that portions of the final cover system are not needed, all new landfills and expansions of existing landfills regulated

under this section shall be designed with a final cover system meeting the following requirements.

1. A minimum 6 inch thick grading layer shall be designed over the final waste elevation to attain the required slope and provide for a stable base for subsequent system components. Daily and intermediate cover may be used for this purpose.

2. A minimum 2 foot thick clay cap shall be designed to provide a low hydraulic conductivity barrier to percolation. Clay used for this layer shall meet the specifications in s. NR 503.(10)(3)(b)1. The clay capping layer shall be constructed in accordance with s. NR 504.06(2)(f).

3. A minimum 2.5 foot thick drainage and rooting zone layer shall be designed above the clay capping layer. This layer shall include a rooting zone to provide additional rooting depth for vegetation and to protect the clay capping layer from freeze-thaw damage and other environmental effects. It shall also include a drainage layer as specified in subd. 4. to allow for the drainage of liquid infiltrating through the cap. Soils available on or near the proposed landfill property may be proposed for the rooting zone layer. This layer may not be densely compacted.

4. A drainage layer shall be designed immediately above the clay capping layer. The drainage layer shall consist of a minimum of one foot of sand with a minimum hydraulic conductivity of $1x10^{-3}$ cm/sec or a geosynthetic drain layer of equivalent or greater transmissivity. A perimeter drain pipe shall be placed at the low end of all final cover sideslopes. The drain pipe shall be surrounded by a minimum of 6 inches of gravel or sand with a minimum hydraulic conductivity of $1x10^{-2}$ cm/sec. A series of outlets at spacings no further than every 200 feet shall be designed around the perimeter. Modeling which supports the proposal of a different spacing may be submitted to the department.

5. A minimum of 6 inches of topsoil shall be designed over the drainage and rooting zone layer to support the proposed vegetation. Fertilizer and lime shall be added in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction in order to establish a thick vegetative growth.

6. The seed type and amount of fertilizer applied shall be proposed depending on the type and quality of topsoil and compatibility with both native vegetation and the final use. Unless otherwise approved by the department in writing, seed mixtures and application rates shall be in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction. Application rates for fertilizer and mulch shall also be specified.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin, 53707. Copies are also available for inspection at the offices of the revisor of statues and the secretary of state.

7. The proposed final use shall be compatible with protection of the final cover system.

8. The landfill shall be designed with a system which allows gas venting from the entire landfill surface unless the landfill will utilize an active gas recovery system. An analysis shall be performed to determine the spacing needed between gas venting trenches for an effective system. The system shall be designed with a continuous layer below the capping layer which allows surficial venting from the waste final surface. This layer may be part of the grading layer required in subd. 1. if the specifications in this subdivision are met. This layer shall consist of a minimum of one foot of granular soil with a

minimum hydraulic conductivity of $1x10^{-3}$ cm/sec, a series of flexible, perforated pipes connected to a series of outlets. A minimum of one gas monitoring well shall be located on each side of the landfill. The wells shall be constructed in accordance with s. NR 507.11.

(f) All landfills regulated under this section shall be designed with storm water drainage ditches, structures and sedimentation basins designed to control rainfall runoff and limit entrained sediment from reaching surface water bodies. At a minimum, the storm water control system shall comply the following:

1. All landfills shall incorporate the following concepts in the design of both temporary and permanent erosion and sediment control measures:
   a. Grading and construction shall be scheduled to minimize soil exposure.
   b. Existing vegetation shall be retained whenever feasible.
   c. Disturbed areas shall be vegetated and mulched.
   d. Runoff shall be diverted away from disturbed areas and active fill areas.
   e. Runoff velocities shall be minimized.
   f. Drainageways and outlets shall be prepared to handle concentrated or increased runoff.
   g. Sediment shall be trapped on site.
   h. Runoff control structures shall be inspected and maintained.
2. Storm water drainage ditches, structures and sedimentation basins shall be designed to be constructed during the initial stages of construction.
3. All temporary and permanent storm water drainage ditches, swales, conveyance channels, channel linings, outlet protections, culverts and other storm water control structures shall be designed using a 25 year, time of concentration storm event to determine peak flow rates. The design calculations shall each be performed for the period in the landfill's development where the combination of surface conditions and contributing acreage would result in the greatest runoff volume.
4. Temporary and permanent sediment control measures shall be designed to settle 0.015 mm size particles for all storms up to and including the 25 year, 6-hour storm event. The surface area for sediment basins shall be calculated using the average rainfall intensity over the 25 year, 6-hour storm event for the landfill. Principal spillway, emergency spillway and outlet protection for sediment basins shall be designed to pass a 25 year, time of concentration storm event. Emergency spillways for sedimentation basins shall be designed to pass a 100 year, time of concentration storm event. The design of the dewatering structures for sediment basins shall be selected such that the basin is dewatered in no less than 3 days. An analysis shall be performed to document compliance with this requirement. The design calculations shall be performed for the period in the landfill's development where the combination of surface conditions and contributing acreage would result in the greatest runoff volume.
5. Storm water shall be diverted away from the active fill area of the landfill and any borrow areas to a sedimentation control structure. The design calculations shall be performed for the period in the landfill's development where the combination of surface conditions and contributing acreage would result in the greatest runoff volume.
6. Containment berms placed around active fill areas shall be designed to control and collect the liquid volume resulting from the 25 year, 24-hour storm event. The design shall consider the volume of liquid generated from active fill areas which shall include areas with exposed solid waste or areas with

waste covered by daily cover. Storm water in contact with active fill areas shall be handled and treated as leachate in accordance with ch. NR 506.

7. Storm water drainage ditches, structures and sedimentation basins shall discharge along existing drainage patterns capable of accepting the anticipated flow volume. An analysis shall be performed to determine the amount and velocity of runoff prior to landfill development and to document compliance with this requirement.

8. Storm water diversion and construction at a landfill shall be designed to minimize impacts on adjacent property, such as erosion, sedimentation and flooding.

Note: Design of storm water management features shall include consideration of other applicable requirements of the department. Requirements include, but are not limited to, ch. NR 103, and permits required by ch. 30, Stats.

(g) All landfills regulated under this section shall be designed with an inspection pad and storage areas for salvageable material as follows:

1. The inspection pad shall be located outside of the landfill's lined area. It shall consist of a permanent, all weather surface which is not readily permeable. The surface of the pad shall be concrete, asphalt or an alternative material approved by the department.

2. The pad shall be designed to be of sufficient size to allow dumping of waste material directly from waste hauling vehicles and prevent delaying subsequent trucks waiting to dump loads.

3. Storage areas for salvageable material shall be designed adjacent to or in close proximity to the inspection pad. At a minimum, storage areas shall be designated for clean soil, broken concrete and pavement, and clean wood.

4. The department may require the construction of storage pads and storm water control structures for the salvageable material storage areas.

(h) All landfills regulated under this section shall be designed to meet the following requirements:

1. A method of controlling any dust or windblown debris shall be included in the landfill design. The factors which will be considered by the department when evaluating alternative provisions for controlling dust and windblown debris include the remoteness of the landfill, natural screening, windbreaks and waste types.

2. All access roads which are used by over the highway vehicles shall be designed with a maximum grade no greater than 10%. The intersection of the landfill access road with an existing highway shall be designed to provide sufficient sight distance and minimum interference with traffic on the highway.

3. The landfill shall be designed so that final grades in each phase are reached as soon as possible, and the open area used for waste filling is minimized.

4. The final slopes shall be equal to or greater than 5%, but may not exceed 25%.

5. A minimum of 2 leachate head wells shall be proposed for each major horizontal phase of the landfill unless otherwise approved by the department.

6. All landfills shall be designed with properly protected permanent benchmarks for horizontal and vertical control. Elevations shall be tied to USGS datum and horizontal control shall be referenced to the property boundary.

(4) OPERATIONAL REQUIREMENTS. No person may operate or maintain a new or existing landfill under this section except in conformance with the approved plan of operation and the following minimum requirements:

(a) Daily operations shall be in conformance with the following:

1. Daily disposal of solid waste shall be confined to as small an area as practical.

2. Provisions shall be made to confine windblown material within the active disposal area.

3. At the conclusion of each day of operation, all windblown material shall be collected and properly disposed of in the active area in accordance with the provisions of this subsection unless the operator establishes, to the satisfaction of the department, that all windblown material cannot be collected using reasonable efforts because of conditions beyond the control of the operator, and windblown material which can be collected using a reasonable effort has been collected and properly disposed and nuisance conditions do not exist.

4. Unless otherwise directed by the department, all waste shall be compacted, at a minimum, on a daily basis. The department may require that waste be completely covered at the end of each operating day with a compacted layer of at least 6 inches of soil or other material approved in writing by the department.

5. Unless otherwise approved by the department in writing, any portion of a landfill which has been used for solid waste disposal but may not receive additional solid waste for a period exceeding 6 months shall be covered with one foot of fine grained intermediate cover. 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. The slopes shall be no less than 5% and no greater than 33%. The department may require that intermediate slopes be vegetated depending on the length of time they will remain open.

6. Access to the landfill shall be restricted through the use of fencing, natural barriers or other methods approved in writing by the department.

7. Effective means shall be taken to limit access to the active disposal area to minimize exposure of the public to hazards.

8. Effective means shall be taken to control birds, flies, rodents, deer and other animals.

9. Equipment shall be available on-site to control accidental fires and arrangements shall be made with the local fire protection agency to acquire its services when needed.

10. A facility manager or certified site operator as required in s. NR 524.05 shall be present at the landfill during all hours of operation as defined in s. NR 524.03(4). A list of names of certified operators and certified facility managers shall be maintained at the landfill in accordance with s. NR 506.17.

11. A gate shall be provided at the entrance to the operation and it shall be kept locked when an operator is not on duty.

12. The gate area shall be policed at the beginning of each day of operation to remove any solid waste which has been placed there during periods when the landfill was closed.

13. A sign acceptable to the department shall be posted at the entrance of any landfill operated for public use which indicates the landfill name, the hours of operation, waste types accepted, penalty for unauthorized use, necessary safety precautions and any other pertinent information.

14. The landfill shall be surrounded with rapidly growing trees, shrubbery, fencing, berms or other appropriate means to screen it from the surrounding area and to provide a wind break.

15. Fugitive dust shall be controlled in accordance with s. NR 415.04 from all areas of the landfill.

16. Provisions shall be made for back-up equipment in the event of operating equipment breakdown.

17. A minimum separation distance of 100 feet shall be maintained between the limits of solid waste filling and adjacent property. The department may require additional separation distance if necessary to provide for vehicle access, drainage, monitoring, gas migration control, separation to adjacent homes or other landfill development factors.

18. All topsoil within the landfill construction limits shall be salvaged and stored within the property boundaries for use in landfill closure. All stockpiled soil material which is not anticipated to be used within 6 months shall be seeded.

19. All access roads to the active area of the operation shall be of all-weather construction and shall be maintained in good condition.

(b) All areas of the landfill property, including areas of temporary disturbance, with the potential for off-site migration of sediment shall be designed, constructed, operated and maintained in accordance with the applicable requirements of s. NR 503.09(3), and best management practices, which include the following:

1. Storm water shall be diverted away from the working area and areas already filled with solid waste.

2. Storm water from upslope areas shall be diverted around disturbed areas to minimize erosion, entrained sediment and the amount of water contacting the disturbed area.

3. The size and duration of disturbances shall be minimized, to the extent practicable, to minimize off-site sediment migration.

4. While the site is disturbed, temporary measures shall be used to trap sediment and off-site sediment migration. This could include gravel breaks or the equivalent to minimize the transport of sediment off-site.

5. Runoff channels shall be protected to prevent scour and erosion that generates sediment.

Note: Best management practice is detailed in "Wisconsin Construction Site Best Management Practice Handbook" published by the Wisconsin department of natural resources, management nonpoint source and land management section and can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

(c) Storm water drainage ditches, structures and sedimentation basins shall be cleaned and maintained so that they properly control storm water and limit entrained sediment in accordance with approved engineering designs. The department may waive this requirement on a case-by-case basis for existing landfills.

(d) All areas of the landfill which do not contain solid waste and are planned for vegetative cover shall be topsoiled, seeded and mulched as soon as practical, but no later than 90 days after completion of construction or by October 15, whichever is earlier and, if construction is completed after September 15, no later than June 15 of the following year. This includes, but is not limited to, the landfill entrance, drainage ditches and surrounding

areas. Erosion control measures shall be placed within 30 days after completion of construction. The seed type and amount of fertilizer applied shall be selected according to the type and quality of topsoil, its compatibility with native vegetation, and the final use. Unless otherwise approved by the department in writing, seed mixtures and applications rates shall be in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

(e) Disposal of solid waste shall begin at the edge of each phase. Solid waste shall be pushed out over the granular blanket. Vehicles may not be driven directly on the granular blanket. Disposal operations shall be conducted as follows:

1. Except for portions of the sideslope greater than 10 feet above the base liner, a layer of solid waste at least 4 feet thick or an adequate amount of other frost protection material shall be placed over the granular blanket in all portions of the lined area prior to December 1st of the year following the year the clay liner was constructed. After this date, solid waste may not be placed on any portion of the liner or lower 10 feet of the sideslope not covered with a 4-foot thick layer of solid waste or other adequate frost protection material. Those portions of the liner or lower 10 feet of sideslope not covered with a 4-foot thick layer of solid waste or other frost protection material by this date shall be investigated for effects from freeze-thaw as specified by the department and shall be repaired and recertified during the next construction season, prior to waste placement. The requirements of this paragraph may be waived by the department.

2. To provide for maximum compaction after the initial 4-foot lift of waste is placed, each single layer of solid waste shall be spread and compacted in 2-foot layers. An alternative plan for compaction of waste may be approved by the department.

(f) Effective means shall be utilized to prevent the migration of explosive gases generated by the waste fill. At no time may the concentration of explosive gases in any landfill structure, excluding the leachate collection system or gas control system components exceed 25% of the lower explosive limit for those gases. At no time shall the concentration of explosive gases in the soils or air within 200 feet of or beyond the landfill property boundary exceed the lower explosive limit for those gases. The department may require that the concentration of explosive gases not exceed the detectable levels for that gas at the landfill property boundary.

(g) Leachate shall be removed from all collection tanks, manholes, lift stations, sumps or other structures used for leachate storage as it is produced, including hours when the landfill is closed, such as overnight and weekends. Leachate shall be managed as follows:

1. 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 the landfill's approved plan of operation and the requirements of this section.

2. Any liquid which comes in contact with waste 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 subd. 1. unless otherwise approved by the department in writing.

3. 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.

(h) Documentation for non-commercial borrow sources which are developed for the construction, operation or closure of a specific landfill shall comply with ch. NR 509 for an initial site inspection. Documentation for all non-commercial clay borrow sources for liners or capping layers which are developed exclusively for a specific landfill shall comply with ch. NR 509 for an initial site inspection and with s. NR 512.15 for clay borrow source documentation. Documentation for commercial clay borrow sources for liners or capping layers shall identify the landowner, location by quarter - quarter section and the current commercial use and shall comply with s. NR 512.15(2) and (3), for clay borrow source documentation. The preceding requirements do not apply to borrow sources approved as part of the feasibility determination under ch. NR 512. All borrow areas shall be abandoned in accordance with section 208.3, Wisconsin department of transportation standard specifications for road and bridge construction, and s. NR 135.02(3)(i) [Drafter's Note: NR 135 is proposed as Clearinghouse Rule no. 95-041] non-metallic mining reclamation standards.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

(i) For all landfills that do not have a department-approved plan for phased development and closure, by October 15th of each year, all areas that are at final grades shall be capped, topsoiled and seeded unless otherwise approved by the department.

(j) Any person who maintains or operates a landfill, or who permits use of property for that purpose shall, when the fill area or portion thereof reaches final grade, or when the department determines that closure is required, cease to accept solid waste and close the landfill or portion thereof in accordance with the plan approval issued by the department and the following minimum practices unless otherwise approved by the department in writing:

1. At least 120 days prior to closing the landfill, the owner or operator shall notify the department in writing of the intent to close the landfill and the expected date of closure. Prior to department notification, the owner or operator shall notify all users of the landfill of the intent to close the landfill so that alternative disposal options can be arranged.

2. Signs shall be posted at all points of access to the landfill at least 30 days prior to closure indicating the date of closure and alternative disposal landfills. Landfills which are operated by and serve only a single waste generator and are not open to the public are exempt from this provision.

3. Notice of the upcoming closure shall be published in a local newspaper at least 30 days prior to closure and a copy of the notice shall be provided to the department within 10 days after the date of publication. Landfills which

are operated by and serve only a single waste generator and are not open to the public are exempt from this provision.

4. Within 10 days after ceasing to accept solid waste, the owner or operator shall restrict access by the use of gates, fencing or other appropriate means to insure against further use of the landfill. If the final use allows access, access shall be restricted until closure has been completed and approved by the department.

5. Closure activities shall begin within 30 days after ceasing to accept solid waste.

6. Within 180 days after ceasing to accept solid waste or, if solid waste disposal operations terminate after September 15, by June 15 of the following year, the owner or operator shall complete seeding, fertilizing and mulching of the finished surface. The seed type and amount of fertilizer applied shall be selected depending on the type and quality of topsoil and compatibility with both native vegetation and the final use. Unless otherwise approved by the department in writing, seed mixtures and applications rates shall be those specified for right-of-ways in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

(k) The owner or operator of the landfill shall maintain the final cover. Repairs to the final cover shall be made as soon as possible after damage to the cap occurs. The following activities are prohibited at solid waste disposal facilities which are no longer in operation unless specifically approved by the department in writing:

1. Use of the waste disposal area for agricultural purposes.
2. Establishment or construction of any buildings over the waste disposal area.
3. Excavation of the final cover or any waste materials.

(l) An owner or operator of a landfill may not accept waste containing free liquids.

(m) Owners and operators of landfills shall implement a program at the landfill for detecting and preventing the disposal of waste not specifically approved for acceptance. The program shall include the following:

1. Inspections shall be made of every incoming load of solid waste unless the owner or operator receives approval in writing from the department to take other steps to insure that incoming loads do not contain wastes not specifically approved for acceptance.
2. Landfill personnel shall be trained in accordance with ch. NR 524 to recognize waste not approved for acceptance.
3. Each load of waste shall be dumped on a permanent inspection pad which is located outside of the waste fill area. Material which is salvageable may be moved to approved storage areas located adjacent to the inspection pad. The remaining material shall be inspected by the certified facility manager or site operator and all material which is approved for disposal at the landfill shall be moved to the active disposal area on the same day on which it is received.

4. Waste which is not approved for acceptance at the landfill shall be rejected. The waste shall be reloaded in the vehicle which delivered the waste or placed in a waste container such as a roll off box or dumpster. This material shall be handled in accordance with all applicable regulations including but not limited to those relating to the transportation, storage, treatment and disposal of the rejected material.

5. If waste not approved for disposal is discovered and is suspected of being hazardous or containing PCB's at a concentration of 50 ppm or greater, the owner or operator of the landfill shall notify the department's district or area solid waste or hazardous waste management specialist in writing within 2 days.

(n) The owner or operator of a landfill 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 all landfill locational criteria restrictions, inspection records, training procedures, notification procedures, plan approvals, closure and post closure plans and financial responsibility, and all demonstrations, certifications, findings, monitoring, testing, and analytical data required under chs. NR 500 to 536. Tonnage information shall be submitted to the department in accordance with s. NR 520.14. Load inspection records shall be maintained for a minimum of 3 years. The operating record shall be made available to the department upon request.

(o) The department may deny, suspend or revoke the approval of a landfill for failure to pay fees required under ss. 144.43 to 144.47, Stats., or for grievous and continuous failure to comply with the approved plan of operation or to comply with any requirement of chs. NR 500 to 536. Any failure to comply with any requirement or condition on 5 or more days within any 30 successive calendar days and which consists of action or inaction which may cause pollution as defined in s. 144.01(10), Stats., or which may otherwise create nuisance conditions, is a grievous and continuous failure to comply with the requirement or condition.

(5) CONSTRUCTION REQUIREMENTS. 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 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 respond within 60 days after receiving a complete submittal, along with the appropriate review and construction inspection fees specified in ch. NR 520. Construction and closure of all landfills shall comply with the following:

(a) A registered professional engineer or qualified technician who is directly supervised by a professional engineer shall be continuously on-site throughout the construction and performing quality assurance duties relating to the following: placement and testing of the clay component of the liner and cover systems, manhole and tank installation, and burying piping prior to covering. The department may require that a registered professional engineer be present during other critical construction activities.

(b) Substitution of personnel under par. (a) shall only occur due to substandard performance, vacations or uncontrollable circumstances such as injury, illness, employe termination or resignation. Where justified by the size of the construction project, multiple registered professional engineers or qualified technicians may be deployed concurrently.

(c) A certification section shall be included as the first section of any construction documentation report prepared for the construction or closure of a portion of a landfill and shall include the following:

1. The signed certification statement contained in s. NR 500.05(4) as well as the seal of all registered professional engineers who either performed quality assurance work on the project or supervised qualified technicians who did so.

2. A table clearly identifying each registered professional engineer and qualified technician who performed quality assurance during the construction; which aspects of construction each person provided on site quality assurance for; the number of days each was present at the landfill; and the total hours each spent at the site. The table shall also clearly identify the registered professional engineer supervising each qualified technician.

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

4. Separate signed statements by the professional engineers identified in subd. 2. certifying to the best of their knowledge, information and belief that the construction, of each item identified as follows, was accomplished in conformance with the approved plans and all applicable solid waste administrative code requirements. All observed deviations 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. The certification shall include the following items:

a. The clay component of a liner or cap. The statement shall specifically address the quality of clay material used and the methods utilized in its placement; connections with previously placed clay layers; preparation of leachate collection trenches, sumps, gas header trenches and any pipe penetrations through the clay liner; and placement of soil materials over the clay liner or clay capping layer.

b. Elements of the construction relating to leachate or storm water routing, collection, storage and transportation as well as gas extraction systems. The statement shall include but not be limited to: construction of leachate collection and transfer lines, side slope risers for leachate pumping, all liner penetrations, collection tanks, manholes, lift stations, lysimeters, gas extraction system construction and leachate headwells.

(d) The department may, under s. 144.431(2)(e), Stats., inspect construction projects for the purpose of determining compliance with ss. 144.43 to 144.47, Stats., and chs. NR 500 to 536. The department's district and central office staff shall be notified, by telefax, telephone or letter, at least one week prior to beginning each of the construction events specified by the department. A fee shall be paid to the department for each required inspection in accordance with s. NR 520.04(5). The inspection fees shall be paid at the time the construction documentation review fee is submitted to the department.

(e) Reports documenting the construction of all new landfill areas shall contain a set of 24 inch by 36 inch engineering plan sheets, or alternative size if approved by the department in writing, prepared in accordance with s. NR 500.05 and containing:

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

2. Plan view drawings showing the locations of all the various soil testing performed. Each test location shall be clearly labeled with appropriate identification codes. The plan view drawings shall clearly show any areas where removal and recompaction of clay was necessary in order to attain the minimum required specifications. Multiple plan views may be shown on a single plan sheet if legibility is not compromised.

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

4. A plan view drawing showing the constructed base grades as well as the locations and elevations of all leachate collection and transfer piping, manholes, lift stations, culverts, berms and the location of all unsaturated zone, groundwater, gas, leachate monitoring and cleanout devices, surface drainage features and other pertinent structures. This information may be shown on the plan sheet required in subd. 3. if legibility is not compromised.

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

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

7. Cross section details shall be included to illustrate all important construction features of the liner, lysimeters, leachate collection trenches and sumps, and sediment control and storm water management systems.

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

9. Additional plan sheets, patterned after those specified in subds. 1. to 8., shall be included for those landfills designed with multiple liners, groundwater gradient control systems or other nonstandard design features.

(f) The report shall contain a detailed narrative describing the construction of the area in a logical fashion. Particular emphasis shall be given to any deviations from the approved plan of operation and to the explicit construction methods used for all locations where leachate transfer piping exits the lined waste fill area. This report shall include the following information at a minimum:

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

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

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

4. A series of properly labeled 35 millimeter color photographs documenting all major aspects of landfill construction. This shall include close-up photographs of the construction process including clay liner placement, 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 prepared sub-base and the completed liner before and after granular blanket placement.

(g) All construction documentation reports for the closure of landfill areas shall contain a set of 24 inch by 36 inch engineering plan sheets, unless an alternative size is approved by the department in writing, prepared in accordance with s. NR 500.05 and shall include:

1. A plan sheet documenting the final waste grades, including daily or intermediate cover. Documentation of grades shall include spot elevations taken on a maximum 100-foot grid after grading has been performed to establish uniform slopes. For areas less than 4 acres, a 50-foot grid shall be used.

2. A plan view drawing for each one-foot thickness of clay placed showing the locations of the various soil testing performed at each test location. Multiple plan views may be presented on a single engineering plan sheet if legibility is not compromised.

3. A plan sheet documenting the final landfill surface following topsoil placement. Documentation of grades shall include spot elevations taken on a maximum 100-foot grid. The approved final grades shall also be shown in a clear and legible manner. This plan sheet shall also show the locations of all manholes, lift stations, risers, head wells, gas venting systems, surface settlement monitoring points, storm water management and sediment control structures, environmental monitoring points and other appurtenances. For areas less than 4 acres, a 50-foot grid shall be used.

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

5. Detail drawings, plan view and cross-section, of the gas venting system, manholes, lift stations, and collection tanks.

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

(h) The report shall contain a detailed narrative describing the closure of the area in a logical fashion. Particular emphasis shall be placed on any deviations from the approved plans. This report shall also include the following information at a minimum:

1. An analysis and discussion of all soil testing work performed. All density and moisture content testing results shall clearly indicate which Proctor curve or line of optimums is applicable to the soil being compacted. Any changes in the referenced Proctor curve or line of optimums shall be identified as to when they occurred and why the change was made. All raw data from the soil testing performed shall be included in an appendix to the closure documentation report unless 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.

2. When the auger method is used to determine soil layer thickness, a discussion of how the auger boreholes were backfilled and the materials used.

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

4. The rates and types of fertilizer, seed and mulch applied. Liming requirements shall also be included along with the actual rate of application.

5. A series of properly labeled 35 millimeter color photographs which document all major aspects of landfill 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 vents, cleanout ports, manholes and other pertinent structures.

(i) Testing shall be performed during the construction and closure of all landfill areas. At a minimum, this testing shall include:

1. For all recompacted clay soil construction the following tests shall be performed:

a. Dry density and as-placed moisture content shall be determined on an approximate 100-foot grid pattern for each one-foot thickness of clay placed. The grid pattern shall be offset on each subsequent layer of tests. A minimum of 2 dry density and moisture content tests for each one-foot thickness of clay 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 5,000 cubic yards or less of clay placed and for each major soil type utilized. At least 5 points shall be established on each curve. If a line of optimums analysis is performed, at least 2 curves shall be included for each analysis. A representative sample for every 5,000 cubic yards or less of clay placed shall be analyzed for grain size distribution through the .002 millimeter particle size and for Atterberg limits. 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 or less for every one-foot thickness of clay placement shall be retrieved and analyzed for Atterberg limits, grain size distribution through the .002 millimeter particle size, moisture content and dry density. Laboratory hydraulic conductivity tests using effective stresses less than or equal to 5 psi and hydraulic gradients less than or equal to 30 shall be performed on every third undisturbed sample. The department may require that a portion of the hydraulic conductivity testing for liner documentation be performed using leachate.

2. During placement of the leachate drainage blanket over the liner or the granular drain layer in the final cover, the following testing shall be performed:

a. If sand is used, one grain size distribution to the #200 sieve for each 1,000 cubic yards of material placed. For lesser volumes, a minimum of 4 samples shall be tested. The department may allow a reduction in the testing frequency if a uniform gravel material is used. If washed stone or gravel is used, one grain size distribution to the #200 sieve for each 5,000 cubic yards of material placed. For lesser volumes, a minimum of 2 samples shall be tested.

b. One remolded laboratory hydraulic conductivity test for each 2,500 cubic yards of material placed. The samples shall be tested at the anticipated field density. The moisture content and density of each sample shall be recorded. The department may require that a portion of the hydraulic conductivity tests be performed using leachate. For lesser volumes, a minimum of 2 samples shall be tested. The department may allow a reduction in testing frequency if a uniform gravel material is used. No hydraulic conductivity tests are required if washed stone or gravel is used.

c. The department may require that chemical durability testing of the material when exposed to leachate be performed.

3. During placement of all leachate or groundwater collection pipe bedding material, the following tests shall be performed:

a. One grain size distribution to the #200 sieve for each 1,000 linear feet of trench. For construction projects with combined trench lengths of less than 3,000 feet, a minimum of 3 grain size analyses shall be conducted. Bedding for

solid wall piping associated with transfer of leachate shall be tested at the same frequency but only to the #4 sieve.

b. One grain size distribution to the #200 sieve for each 500 cubic yards of drainage material placed in collection sumps.

c. Chemical durability testing of the material when exposed to leachate and laboratory hydraulic conductivity testing be performed if required by the department.

4. During construction of the final cover system, the following tests shall be performed:

a. One grain size distribution to the #200 sieve for each 1000 cubic yards of gravel used for pipe bedding and drain outlets for the drain layer and toe drain.

b. Testing of samples of geotextiles, geocomposite drains or other geosynthetic materials used in construction of the final cover system if required by the department.

(6) FINANCIAL RESPONSIBILITY FOR CLOSURE AND LONG TERM CARE. The owner of a landfill approved in accordance with this section shall establish proof of financial responsibility for closure and long term care of the landfill using methods listed in s. NR 520.06.

(a) The owner of a landfill approved in accordance with this section shall submit, prior to beginning disposal operations and annually thereafter for the period of active landfill life, proof of financial responsibility to ensure compliance with the closure requirements of the approved report.

(b) The owner of a landfill approved in accordance with this section shall provide proof of financial responsibility for the long-term care of the landfill for 40 years after landfill closure. An owner responsible for long-term care shall submit, prior to beginning disposal operations and annually thereafter for the period of active landfill life, proof of financial responsibility to ensure compliance with the long-term care requirements of the approved report.

(c) Any person acquiring rights of ownership, possession or operation of a landfill approved in accordance with this section shall be subject to all requirements of the plan of operation for the landfill and shall provide any required proof of financial responsibility to the department in accordance with ch. NR 520. The previous owner shall maintain proof of financial responsibility until the person acquiring ownership, possession or operation of the landfill obtains department approval of proof of financial responsibility.

(7) ENVIRONMENTAL MONITORING. The owner of a landfill regulated under this section shall establish an environmental monitoring program which, at a minimum, includes the requirements of this subsection. The department may require installation of additional monitoring devices, additions to the groundwater and leachate sampling and analysis programs, gas monitoring and provisions to protect against the detrimental effects of leachate and gas migration.

(a) Baseline water quality shall be established at all monitoring wells for all the parameters listed in Table 3.

(b) A minimum of 4 samples, with at least 30 days between sampling rounds, shall be collected and analyzed and the results shall be submitted with the

proposal for constructing the landfill. Four additional samples, with at least 30 days between sampling rounds, shall be collected and analyzed for any parameters listed in Table 3 which exceeded preventive action limits established in Table 1 of ch. NR 140 during 2 or more of the first 4 rounds.

(c) If additional samples are required under par. (b), the results of the 4 additional samples shall be submitted in the construction documentation report for the landfill.

(d) Collection, handling and analysis of samples shall be performed in accordance with ss. NR 507.16 and 507.17.

(e) A detection groundwater monitoring program shall be established at each monitoring well beginning with the first sampling period following acceptance of waste. Each well shall be sampled semi-annually for the parameters listed in column 1 of Table 3.

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

(f) A leachate monitoring program shall be established beginning with the first sampling period following acceptance of waste in accordance with Table 4 or as approved by the department in writing.

(g) A minimum of one leachate point shall be sampled for the parameters in Table 4 according to the frequency indicated in Table 4 unless otherwise approved by the department. Leachate volume pumped shall be recorded monthly. The parameters listed in column 2 in Table 4 shall be sampled semi-annually for 2 years beginning with the first sampling period following acceptance of waste. The parameters listed in column 3 in Table 4 shall be sampled annually following the first 2 years of sampling.

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
	Groundwater elevation	Groundwater elevation
	Hardness	Hardness
	Iron	Iron
	Lead	Lead
	Manganese	Manganese
	Mercury	Mercury
	Sodium	Sodium
	Sulfate	Sulfate
	Total kjeldahl nitrogen	Total kjeldahl nitrogen
	Total suspended solids	Total suspended solids
	VOCs	VOCs

(8) EXPANSIONS. (a) Any person who wishes to expand an existing intermediate size construction and demolition waste landfill shall comply with all provisions of this section. The department shall interpret expansions to include the establishment of any new landfill within ¼ mile of an existing landfill. In no case may the combined design capacity of the landfill and all subsequent expansions exceed 250,000 cubic yards. The department may deny any request for an expansion if, in the department's opinion, the disposal of additional waste may result in a detrimental effect on surface or groundwater or cause or exacerbate an attainment or exceedance of any standard in ch. NR 140. The local geology, hydrogeology and topography shall be considered in this decision.

(b) Any person who wishes to expand a small size construction and demolition waste landfill which was in existence prior to the effective date of this rule ... [revisor inserts date] into an intermediate size construction and

demolition waste landfill shall comply with all provisions of this section. In no case may the combined design capacity of the existing landfill and the subsequent expansion exceed 250,000 cubic yards. If the existing small size construction and demolition waste landfill is not designed with a clay liner, a separation distance of at least 100 feet shall be maintained between the existing landfill and the proposed expansion. A small size construction and demolition landfill which was not in existence before the effective date of this rule ... [revisor inserts date] may not be expanded into an intermediate size construction and demolition waste landfill.

(9) INSPECTION FEES. (a) The department may specify in any approval that critical construction steps of a landfill be inspected by the department. The owner or operator shall pay a construction inspection fee of $500.00 per inspection to the department at the time of submittal of a construction documentation report or as specified in the plan approval. A maximum of 10 inspections per major phase of construction may be required.

(b) The owner or operator of an intermediate size construction and demolition waste landfill shall pay an operation inspection fee to the department in accordance with ch. NR 520, Table 3 prior to beginning initial operation and annually on October 1st of each year.

SECTION 99. NR 504(title) is amended to read:

NR 504(title) LANDFILL LOCATION, PERFORMANCE, ~~AND~~ DESIGN AND CONSTRUCTION CRITERIA

SECTION 100. NR 504.01 is amended to read:

NR 504.01 The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in ~~Wisconsin~~ this state and to provide information on locational criteria, performance standards and the minimum design and construction requirements for ~~solid waste disposal facilities~~ landfills. This chapter is adopted under ss. 144.43 to 144.47 and 227.11, Stats.

SECTION 101. NR 504.02(1) is amended to read:

NR 504.02(1) Except as otherwise provided, this chapter governs all ~~solid waste disposal facilities~~ landfills as defined in s. 144.43 ~~(5)~~ (2w), Stats., except landspreading facilities regulated under ch. NR 518, small demolition waste landfills regulated under ch. NR 502, hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690 and metallic mining ~~operations as defined in s. 144.81(5), Stats., and~~ waste facilities regulated under ch. NR 182.

SECTION 102. NR 504.04(title)(1) is amended to read:

NR 504.04(title) LANDFILL LOCATIONAL CRITERIA AND PERFORMANCE STANDARDS. (1) As part of the feasibility report required under ch. NR 512 an applicant shall

demonstrate to the department that the proposed ~~facility~~ landfill will comply with all of the ~~location~~ locational criteria and performance standards of this section unless an exemption is granted.

SECTION 103. NR 504.04(2)(a) and (b) are amended to read:

NR 504.04(2)(a) Exemptions from compliance with subs. (3) (a), (b), (d), (e), (f), (g), (h), (i) and (4) (b), (e) and (f) may be granted by the department only upon demonstration by the applicant of circumstances which warrant such an exemption. Exemptions from compliance with sub. (4) (a) may be granted only in accordance with the standards set forth in ~~s. NR 1.95~~ ch. NR 103. Exemptions from compliance with subs. (3) (c) and (4) (c) ~~will~~ may not be granted. Exemptions from compliance with sub. (4) (d) may be granted only according to the procedures set forth in chs. NR ~~508~~ 507 and 140. Exemptions from compliance with sub. (3) (f) will be based on an evaluation of the information contained in par. (b). However, no exemptions from sub. (3) (f) may be granted unless information on the well location, former and present well owner, well driller, well log and construction details and the general hydrogeologic setting is submitted to the department. 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.

(b) 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 ~~facility~~ landfill; the proposed ~~facility~~ landfill design and operation; the availability of other environmentally suitable alternatives; 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 such exemptions shall be addressed by the applicant in the feasibility report.

SECTION 104. NR 504.04(3)(title) and (intro) are amended to read:

NR 504.04(3)(title) LOCATIONAL CRITERIA.(intro) No person may establish, construct, operate, maintain or permit the use of property for a ~~solid waste land disposal facility~~ landfill where the limits of filling are or would be within the following areas:

SECTION 105. NR 504.04(3)(a) is amended to read:

NR 504.04(3)(a) Within 1,000 feet of any navigable lake, pond or flowage not including ~~facility~~ landfill drainage or sedimentation control structures.

SECTION 106. NR 504.04(3)(d) is amended to read:

NR 504.04(3)(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, unless the ~~facility~~ landfill is screened by

natural objects, plantings, fences or other appropriate means so that it is not visible from the highway or park.

SECTION 107. NR 504.04(3)(e) is repealed and recreated 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 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.

2. A landfill used for the disposal of putrescible waste which is in existence on the effective date of this rule ... [revisor inserts date] and which is located within 10,000 feet of any airport runway end used or planned to be used by turbojet aircraft or within 5,000 feet of any runway end used by only piston-type aircraft shall be closed by October 9, 1996 unless the owner or operator of the landfill demonstrates to the satisfaction of the department that the landfill will not pose a significant hazard to aircraft. The deadline for closure may be extended by the department by up to 2 years if the owner or operator demonstrates that there is no available alternative disposal capacity and there is no immediate threat to human health and the environment.

Note: Owners or operators proposing to site a new or expand an existing municipal solid waste landfill within a 5 mile radius of any airport runway end used by turbojet or piston type aircraft must notify the owner or operator of the affected airport and the federal aviation administration (FAA).

SECTION 108. NR 504.04(3)(g) to (i) are created to read:

NR 504.04(3)(g) Within 200 feet of a fault that has had displacement in Holocene time.

(h) Within seismic impact zones.

(i) Within unstable areas.

SECTION 109. NR 504.04(4)(intro) is amended to read:

NR 504.04(4)(intro) No person may establish, construct, operate, maintain or permit the use of property for a ~~solid waste land disposal facility within an area where~~ landfill if there is a reasonable probability that the ~~facility~~ landfill will cause:

SECTION 110. NR 504.04(4)(a) is amended to read:

NR 504.04(4)(a) A significant adverse impact on wetlands as provided in ch. NR 103.

SECTION 111. NR 504.04(4)(e) is amended to read:

NR 504.04(4)(e) The migration and concentration of explosive gases in any ~~facility~~ landfill structures excluding the leachate collection system or gas control or recovery system components~~, or~~ in excess of 25% of the lower explosive limit for such gases at any time. The migration and concentration of explosive gases in the soils ~~or~~ outside of the limits of filling within 200 feet of the landfill property boundary or beyond the landfill property boundary in excess of the lower explosive limit for such gases at any time. The migration and concentration of explosive gases in the air ~~at~~ outside of the limits of filling within 200 feet of the landfill boundary or beyond the ~~facility~~ landfill property boundary in excess of ~~25% of~~ the lower explosive limit for such gases at any time.

SECTION 112. NR 504.05 is repealed and recreated to read:

NR 504.05 GENERAL DESIGN AND CONSTRUCTION CRITERIA. (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 the effective date of this rule ... [revisor inserts date] as well as to proposed design changes for all landfills which are submitted after the effective date of this rule ... [revisor inserts date]. 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.

(2) If the proposed design differs from the requirements in ss. NR 504.06 to 504.09, the applicant shall provide supporting justification for any differences.

(3) The design capacity of all proposed landfills, except landfills that are exempted in s. 144.44(2)(nr), Stats., shall be determined such that the projected operating life of the landfill is not less than 10 years nor more than 15 years. Expansions of existing landfills are not subject to the 10-year minimum design capacity requirement. Waste approved for use in construction of landfill components is not considered part of the design capacity.

SECTION 113. NR 504.06 is repealed and recreated to read:

NR 504.06 MINIMUM DESIGN AND CONSTRUCTION CRITERIA FOR LANDFILL LINERS AND LEACHATE COLLECTION SYSTEMS. (1) GENERAL. (a) All major phases of landfills initially accepting municipal solid waste after the effective date ... [revisor inserts date] shall be designed 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 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 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), (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), (3) and (4), unless the department approves the applicant's alternative design as per s. NR 504.10, which provides an equivalent or better level of performance than the standards contained in this chapter.

(b) If the applicant does not complete construction of the first major phase of the landfill within 2 years from the date of the plan of operation approval, the applicant shall reapply to the department for approval to construct the landfill. This application does not constitute a feasibility report as defined in s. 144.44(2), Stats. The department may require additional conditions of approval and require redesign of the landfill in accordance with state-of-the-art design criteria.

(2) COMPOSITE OR CLAY LINED LANDFILLS. All landfills designed with a composite liner or a clay liner shall meet the following requirements:

(a) All clay used in liner construction shall meet the following specifications:

1. A minimum of 50% by weight which passes the 200 sieve.
2. A saturated hydraulic conductivity of $1x10^{-7}$ cm/sec or less, when compacted to required moisture contents and densities based on the modified Proctor method, standard Proctor method, or a line of optimums method approved by the department.
3. An average liquid limit of 25 or greater with no values less than 20.
4. An average plasticity index of 12 or greater with no values less than 10.

(b) 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 except for zone-of-saturation landfills.

(c) The separation distance between the top of the bedrock surface and the bottom of the clay component of a composite liner or a clay liner shall be at least 10 feet.

(d) The slope of the liner surface toward the leachate collection lines shall be at least 2%.

(e) The minimum thickness of the clay component of a composite liner at all locations shall be at least 4 feet. The minimum thickness of a clay liner at all locations shall be at least 5 feet.

(f) The clay component of a composite liner or a clay liner shall be constructed in the following manner:

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 approval by the department.

2. A sufficient number of passes of the compaction equipment shall be made over each lift of clay to ensure complete remolding of the clay.

3. All clay shall be compacted to 90% modified or 95% standard Proctor density at a moisture content at least 2% 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 clay being placed. As clay placement proceeds, the minimum density and moisture content targets shall be adjusted as necessary. The department recommends use of an alternate method of determining adequate density and moisture content based on a line of optimums method. However, this method may not be used unless it has been previously detailed in a landfill's plan of operation or a proposed plan modification and approved in writing by the department. At a minimum, any such proposal shall address how the line of optimums would be defined, as well as how the minimum dry unit weight needed to ensure adequate shear strength of the clay soils proposed would be determined.

(g) The slope of the interior sidewalls of a landfill may not exceed 3 horizontal to one vertical nor be less than 5 horizontal to one vertical.

(h) The clay component of a liner in adjacent phases shall be keyed together to form a continuous clay seal. This shall be accomplished by excavating steps along the edge of the existing lined phase and overlapping them with the lifts of clay being placed for the liner of the new phase. A minimum of 4 steps shall be included, with the total width of the spliced area measuring a minimum of 15 feet.

(3) COMPOSITE-LINED LANDFILLS. All landfills designed with a composite liner shall meet the following additional requirements for the geomembrane component of the liner:

(a) All geomembranes shall be fabricated from resins specifically formulated for waste containment purposes. Nominal geomembrane thickness shall be 60 mils or greater with no thickness measurements falling below the minimum industry accepted manufacturing tolerances.

(b) Additional protection shall be provided for the geomembrane component of the composite liner along areas subject to traffic or other concentrated activity during construction or operation. This shall include sumps, sideslope risers, and entry ramps.

(c) For slopes in excess of 10%, geomembrane panels shall be installed such that all seams run perpendicular to the contour lines of the slope to the extent possible.

(d) Prior to geomembrane placement, the clay surface shall be rolled and graded so it is free of irregularities, protrusions, loose soil, and abrupt changes in grade. The surface shall also be free of stones, grade stakes and construction debris which may be damaging to the geomembrane and shall contain no areas excessively softened by high water content. The clay surface shall be sufficiently dry and dense such that the construction equipment used to place the geomembrane panels do not rut the clay surface. All depressions and large cracks shall be filled in with tamped clay.

(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 approval shall be obtained prior to use of any other welding method for either panel seaming, repairs or construction of details.

(f) The geomembrane component of a composite liner constructed in phases adjacent to each other shall be welded together to form a continuous membrane surface. The liner extending beyond the proposed edge of waste at a phase junction shall be protected from traffic and weather.

(g) Wrinkles in the geomembrane component which are higher than they are wide, shall be smoothed or cut out and repaired prior to covering with soil. Guidance to machine operators placing soil on the geomembrane component shall be provided by the use of an observer with an unobstructed view of the advancing lift of soil.

(h) The minimum thickness of soil which must be present over the geomembrane component before vehicular traffic may occur shall be one foot for vehicles with ground pressure less than 5 pounds per square inch and 2 feet for all other tracked vehicles and flotation tire equipped vehicles. Trucks and other wheeled hauling equipment shall be confined to corridors or locations with a soil thickness of 3 or more feet over the geomembrane component.

(i) In order to lessen desiccation effects, the base of the landfill and the lower 10 vertical feet of the sideslope shall be covered with drainage blanket within 30 days after completing quality control and quality assurance testing of the installation. The remaining sideslope shall be covered with either drainage material or a geotextile to prevent damage to the geomembrane.

(j) To prevent movement and folding of wrinkles, placement of soil over the membrane shall be performed during cooler temperature periods to the extent possible using methods of placement which minimize wrinkling.

(k) Anchor trenches shall be designed and constructed around the perimeter of the landfill to secure the permanent edges of the geomembrane. The geomembrane shall be seamed completely to the ends of all panels to minimize the potential of tear propagation along the seam.

(4) ZONE-OF-SATURATION LANDFILLS. All landfills proposed with base grades beneath the groundwater table shall meet the following requirements:

(a) The landfill shall be located in a fine-grained soil environment.

Note: Fine-grained soil environment is defined in s. NR 500.03(86).

(b) The landfill shall meet the requirements in sub. (2)(a), (d), (e), (f), (g) and (h), and if the landfill will accept municipal solid waste, sub. (3).

(c) An analysis shall be performed of the effect which groundwater flow may have on uplift of the liner and the short and long-term stability of the geomembrane component of the composite liner. The analysis shall evaluate the effect of an underdrain or other dewatering system.

(d) Borings, backhoe pits or other means of exposing subsoils shall be performed on a 100 foot grid to a minimum depth of 5 feet below the gradient control layer, if part of the design, or a minimum depth of 5 feet below the subbase grades of the liner. All detected granular or silty soils within this 5 foot depth shall be removed and replaced with compacted, fine-grained soils.

(5) LEACHATE COLLECTION SYSTEMS. All leachate collection systems shall incorporate the following design features:

(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 landfills.

(b) The minimum slope on all leachate collection pipes at the base of the landfill shall be a constant 0.5%. The department recommends that greater pipe slopes be utilized whenever possible.

Note: The department strongly recommends that greater pipe slopes be utilized whenever possible.

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

(d) Leachate collection trenches for clay liners shall be designed as rectangular trenches. Leachate collection trenches for composite liners shall be designed as vee-trenches, with a minimum depth of 18 inches and with sideslopes no steeper than 3 horizontal to one vertical. The clay component of vee-trenches shall be smooth-drum rolled such that the clay in the trenches is smooth prior to placement of the membrane. 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 oz/yd^2, and may not be overlapped over the top of the trench.

(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 inches, a maximum of 5% of the material which passes the number 4 sieve and 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 6 inches of material shall be mounded above the trench. In cases where 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.

(f) The sizing of sand, gravel, geotextiles and pipe openings shall be analyzed for control of piping of soil materials. The gradation of sand and

gravel, the apparent opening size of geotextiles, and the pipe opening sizes shall be selected to achieve a stable and self-filtering structure under all conditions of leachate flow.

(g) All leachate collection lines shall have cleanout access points installed on both ends of each line and may not exceed 1200 feet from the end of one cleanout to the toe of the opposite slope.

(h) Leachate lines, manholes and other engineering structures may not penetrate the liner in the vertical direction. For clay lined landfills, leachate transfer lines may penetrate the liner in the horizontal direction only. The number of liner penetrations shall be kept to a minimum. Composite lined landfills shall be designed without any perforations in the liner and in accordance with par. (j).

(i) Any leachate line that penetrates a clay liner shall have a 4 foot by 4 foot anti-seep collar placed around it. A minimum of 5 feet of compacted clay, as measured from the pipe, shall be placed around the collar in all directions.

(j) All composite lined landfills shall be designed and constructed with sumps and sideslope risers as part of their leachate removal system rather than utilizing systems which penetrate the composite liner sidewall. The leachate removal system shall meet the following requirements:

1. The volume of the sump and the capacity of the pump shall be sized so that accumulation of leachate outside the sump does not occur based on an assumed annual leachate collection rate of 6 inches. The volume of the sump shall take into account the potential buildup of solids over time.
2. The base of the leachate collection sumps shall be protected by the use of a thick polyethylene plate or other means acceptable to the department which is placed prior to the installation of the sideslope riser and backfill.
3. The leachate discharge pipes between the sideslope risers and collection tank shall be equipped with valves to prevent backflow into the waste disposal area.

(k) All leachate lines transporting leachate out of the landfill by gravity shall be constructed with valves so the flow of leachate can be controlled. The valves shall be compatible with the leachate and be capable of being operated from the ground surface.

(l) All leachate transfer lines located outside of the composite lined or clay lined area shall be designed to assure groundwater protection through the use of double-cased pipe or by using another approved secondary containment method. All leachate transfer line piping shall be pressure tested prior to use. Unless otherwise approved by the department, the upslope end of the secondary pipe shall be sealed and the downslope end shall be open to allow any collected liquid to flow into the manhole.

(m) All leachate transfer lines, manholes, lift stations and other structures which transfer or store leachate outside the limits of waste shall be designed as shallow as practical and located far enough from the limits of filling so that excavations associated with repair of these devices would not infringe on the landfill cover system or sidewall liner. Each of these devices shall be constructed above the seasonal high groundwater table unless it is not

technically feasible to do so and the design meets the requirements of par. (l).

(n) Leachate collection tanks and manholes shall be designed with a secondary containment system to prevent the discharge of leachate to ground and surface waters in the event of a leak or spill. Means shall be provided to monitor the tank and manholes within the secondary containment system unless other means for leak detection are approved by the department.

(o) All leachate collection tanks shall be designed to contain the volume of leachate which is generated by the landfill over a 4 day period and to withstand the soil and liquid loads that will be encountered during installation and use. The installation of the tanks shall follow the recommendations of the consultant and manufacturer.

(p) Measures shall be proposed to prevent accidental discharges at the leachate loadout station from entering groundwater or surface water. Unless an alternate method is approved by the department, the leachate loading station shall be paved with a concrete or asphalt pad and sloped to a catch basin to direct all spills back into the leachate holding tank.

(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 systems, these devices shall be designed to minimize air intrusion into the landfill.

(r) All control systems such as pumps, valves and meters shall be designed to be operated from the ground surface.

(s) All leachate and groundwater collection systems shall be designed to accurately monitor the volume of liquid removed by the system.

(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. If the drainage blanket contains gravel greater than ¼ inch, then a nonwoven geotextile shall be installed below the drainage blanket. The geotextile shall have a minimum weight of 12 oz/yd^2. The granular drainage blanket shall contain no more than 5% material by weight which passes the number 200 sieve, have a uniformity coefficient of less than 4 for gravel soils and less than 6 for sandy soils, and a hydraulic conductivity which is greater than or equal to $1x10^{-2}$ cm/sec at the anticipated field density.

(u) All major horizontal clay lined phases above the saturated zone shall be designed with a collection basin lysimeter to monitor the unsaturated zone except for composite lined landfills.

SECTION 114. NR 504.07(title) is amended to read:

NR 504.07(title) MINIMUM DESIGN AND CONSTRUCTION CRITERIA FOR FINAL COVER SYSTEMS.

SECTION 115. NR 504.07(1)(a) and (b) are amended to read:

NR 504.07(1)(a) All final cover systems shall be designed to minimize leachate generation by limiting the amount of percolation through the cap system, reduce ~~facility~~ landfill maintenance by stabilizing the final surface through design of compatible slopes and establishment of vegetation, account for differential settlement and other stresses on the capping layer, minimize the climatic effects of freeze-thaw and desiccation on the clay capping layer of the final cover system, and provide removal of leachate and venting of gas from those ~~facilities~~ landfills which accept wastes with a high moisture content or which readily biodegrade.

(b) All new ~~facilities~~ landfills and expansions of existing ~~facilities for which the plan of operation was not approved before February 1, 1988~~ landfills shall be designed with a final cover system meeting the requirements in subs. (2) to ~~(6)~~ (9) unless it is established to the satisfaction of the department that portions of the ~~cap~~ final cover system are not ~~necessary~~ needed based on the proposed waste types and the proposed design. The geomembrane component in sub. (5) does not apply to landfills designed exclusively for the disposal of high volume industrial waste, or to other landfills which are not designed to accept municipal solid waste unless the landfill is composite lined.

SECTION 116. NR 504.07(1)(c) and (d) are created to read:

NR 504.07(1)(c) Any phases of an existing landfill which have been designed and constructed with a composite liner shall be designed and constructed with a final cover system meeting the requirements in 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 the effective date of this rule ... [revisor inserts date].

(d) Landfills which accept papermill sludges or other industrial solid wastes with high water contents and low strength may propose alternate final cover systems if the strength of the waste mass will not allow for the construction of the cover system required in this section.

SECTION 117. NR 504.07(2) is amended to read:

NR 504.07(2) A minimum 6 inch thick grading layer shall be designed over the final waste elevation of ~~facilities~~ landfills proposing to accept municipal solid waste ~~materials~~ to attain the required slope and provide for a stable base for subsequent system components. Daily and intermediate cover may be used for this purpose.

SECTION 118. NR 504.07(3) and (4) are repealed and recreated to read:

NR 504.07(3) SUPPORT LAYER FOR LOW-STRENGTH WASTES. A support layer shall be designed for stabilization, reinforcement and removal of leachate and gas over the final waste elevations for landfills which accept industrial solid wastes with high water contents and low strength.

(4) CLAY CAPPING LAYER. A minimum 2 foot thick clay cap shall be designed to provide a low hydraulic conductivity barrier to percolation. Clay used for this

layer shall meet the specifications in s. NR 504.06(2)(a). The clay capping layer shall be constructed according to s. NR 504.06(2)(f).

SECTION 119. NR 504.07(5)(a) to (c) are repealed.

SECTION 120. NR 504.07(5) to (8) are renumbered NR 504.07(6) to (9) and NR 504.07(6)(title),(intro), (7), (9)(intro),(a) and (b) as renumbered are amended to read:

NR 504.07(6)(title) DRAINAGE AND ROOTING ZONE LAYER.(intro) A minimum ~~1.5 to~~ 2.5 foot thick ~~soil cover~~ drainage and rooting zone layer shall be designed above the geomembrane layer or clay capping layer. This layer shall include a rooting zone to provide additional rooting depth for vegetation and to protect the geomembrane layer or the clay capping layer from freeze-thaw damage ~~due to freeze-thaw and desiccation~~ and other environmental effects. It shall also include a drainage layer to allow for the drainage of liquid infiltrating through the cap. Soils available on or near the proposed ~~facility~~ landfill property may be proposed for ~~this material.~~ the rooting zone portion of this layer. This layer ~~shall~~ may not be densely compacted. ~~The thickness of this layer shall be based on:~~

(7) A minimum of 6 inches of topsoil shall be designed over the cover layer to support the proposed vegetation. ~~A testing program of the proposed topsoil sources shall be designed which will document nutrient content and pH adjustments.~~ Fertilizer and lime shall be added ~~as indicated by the testing~~ in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction or other appropriate specifications in order to establish a thick vegetative growth.

(9)(intro) The proposed final use shall be compatible with the final cover system. The following activities are prohibited at ~~closed~~ solid waste disposal ~~facilities~~ landfills which are no longer in operation unless specifically approved by the department in writing.

(a) Use of the ~~facility~~ waste disposal area for agricultural purposes.

(b) Establishment or construction of any buildings over the waste disposal area.

SECTION 121. NR 504.07(5) is created to read:

NR 504.07(5) GEOMEMBRANE LAYER. A geomembrane layer shall be designed to provide a low hydraulic conductivity barrier to percolation. The design and construction of the geomembrane component of the final cover system shall meet the requirements of s. NR 504.06(3)(c) to (j) and the following:

(a) The nominal geomembrane thickness shall be 40 mils or greater, with no thickness measurements falling below industry accepted manufacturing tolerances.

(b) The geomembrane shall be installed in direct contact with the clay capping layer.

(c) Penetrations of the geomembrane, such as gas extraction wells, shall be fitted with prefabricated collars of pipe and membrane or plate and welded at the same angles which the penetrations make with the final cover slope. Methods of fixing membrane boots to vertical pipes extending above the geomembrane shall allow for differential settlement of the waste with respect to the piping without damage to the membrane seal.

SECTION 122. NR 504.07(6)(a) and (b) are created to read:

NR 504.07(6)(a) For all landfills, a drainage layer shall be designed immediately above the capping layer. The drainage layer shall consist of a minimum of one foot of sand with a minimum hydraulic conductivity of $1x10^{-3}$ cm/sec or a geosynthetic drain layer of equivalent or greater transmissivity.

(b) A perimeter drain pipe shall be placed at the low end of all final cover sideslopes. The drain pipe shall be surrounded by a minimum of 6 inches of gravel or sand with a minimum hydraulic conductivity of $1x10^{-2}$ cm/sec. The drain pipe shall be sloped to a series of outlets at spacings no further than every 200 feet. Modeling may be submitted to the department which supports the proposal of a different spacing.

SECTION 123. A NOTE following NR 504.07(8) is created to read:

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin, 53707. Copies are also available for inspection at the offices of the revisor of statues and the secretary of state.

SECTION 124. NR 504.08 is repealed and recreated to read:

NR 504.08 MINIMUM DESIGN AND CONSTRUCTION CRITERIA FOR LANDFILL GAS EXTRACTION SYSTEMS. (1) GENERAL. All landfills accepting wastes with the potential to generate gas shall be designed to prevent the migration of explosive 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 accept municipal solid waste shall be designed with an active gas recovery system. All gas recovery systems shall include the following design features, unless otherwise approved by the department:

(a) Vertical gas extraction wells shall be proposed throughout the entire landfill with a maximum radius of influence of 150 feet per well and lesser radii proposed for wells located near the perimeter of the landfill. The radii of influence of adjacent wells shall overlap. Alternate well spacings may be proposed if site specific data is obtained through performance of pump tests.

(b) All vertical gas extraction wells shall extend to 10 feet above the leachate collection system and shall be placed in 36 inch diameter boreholes. An exemption may be proposed to allow for placement of gas extraction wells closer to the leachate collection system.

(c) The pipe in the borehole shall be a minimum 6 inch diameter, Schedule 80 polyvinylchloride or an approved alternate.

(d) The lower 2/3 to 3/4 of the pipe in the borehole shall be slotted or perforated pipe.

(e) The backfill around the slotted or perforated pipe in the borehole shall be one to 1½ inch washed stone. The top 10 feet of the borehole shall be sealed.

(f) Each gas extraction well shall have a flow control valve and sampling access port.

(g) The gas header system shall be looped to allow alternative flow paths for the gas.

(h) The minimum slope on the header pipe shall be 2% for pipes over the waste mass.

(i) Polyethylene pipe shall be used for header and lateral pipes.

(j) The sizing of the blower, header and laterals shall ensure that a minimum vacuum of 10 inches water column is available in the header adjacent to those wells located furthest from the blower.

(k) A drip leg or equivalent shall be installed immediately before the blower to separate condensate from gas while preserving the suction at the wells while under maximum operating vacuum.

(l) All condensate transfer piping and gas transfer piping located outside of the limits of waste shall be designed to be fully encased in at least 2 feet of clay, double-cased pipe or by using another approved secondary containment method except for systems with multiple drip legs within the landfill where the bulk of the condensate has been removed.

(m) The system shall be designed to have the ability to collect and treat all condensate, measure volumes and collect samples.

(n) A flare shall be designed to meet the requirements of ch. NR 445.

(3) GAS MONITORING WELLS. A minimum of one gas monitoring well shall be located on each side of the landfill. The wells shall be constructed according to s. NR 507.11.

(4) PASSIVE GAS EXTRACTION SYSTEMS. Landfills which accept only industrial waste or other nonmunicipal solid waste with the potential to generate gas and which do not utilize an active gas extraction system shall be designed with a system which allows gas venting from the entire landfill surface. An analysis shall be performed to determine the spacing needed between gas venting trenches for an effective system and also to ensure that ch. NR 445 limits for hazardous air contaminants will not be exceeded. The system shall be designed with a continuous layer below the capping layer which allows surficial venting from the waste final surface. This layer may be part of the support layer required in s. NR 504.07(3). This layer shall consist of a minimum of one foot of

granular soil with a minimum hydraulic conductivity of $1x10^{-3}$ cm/sec and a series of flexible, perforated pipes connected to a series of outlets.

SECTION 125. NR 504.09 to 504.11 are created to read:

NR 504.09 STORM WATER MANAGEMENT AND MISCELLANEOUS DESIGN AND CONSTRUCTION CRITERIA FOR LANDFILLS. (1) STORM WATER MANAGEMENT. (a) Storm water drainage ditches, structures and sedimentation basins shall be designed such that the construction of these items shall occur during the initial stage of construction to control rainfall runoff and limit entrained sediment from reaching surface water bodies.

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

1. Grading and construction shall be scheduled to minimize soil exposure.
2. Existing vegetation shall be retained whenever feasible.
3. Disturbed areas shall be vegetated and mulched.
4. Runoff shall be diverted away from disturbed areas and active fill areas.
5. Runoff velocities shall be minimized.
6. Drainageways and outlets shall be prepared to handle concentrated or increased runoff.
7. Sediment shall be trapped on site.
8. Runoff control structures shall be inspected and maintained.

(c) The design calculations required in pars. (d), (e) and (f) shall each be performed for the period in the landfill's development where the combination of surface conditions and contributing acreage would result in the greatest runoff volume.

(d) All temporary and permanent storm water drainage ditches, swales, conveyance channels, channel linings, outlet protection, culverts and other storm water control structures handling flow onto or off the landfill shall be designed to accommodate peak flow rates from a 25 year, time of concentration storm event.

(e) Temporary and permanent sediment control measures shall be designed to settle 0.015 mm size particles for all storms up to and including the 25 year, 6 hour storm. The surface area for sediment basins shall be calculated using the average rainfall intensity over the 25 year, 6-hour storm event for the landfill. Principal spillway, emergency spillway and outlet protection for sediment basins shall be designed to pass a 25 year, time of concentration storm event. Emergency spillways for sedimentation basins shall be designed to pass a 100 year, time of concentration storm event. The design of the dewatering structures for sediment basins shall be selected such that the basin is dewatered in no less than 3 days. An analysis shall be performed to document compliance with this requirement.

(f) Storm water shall be diverted away from the active fill area of the landfill and any borrow areas to a sedimentation control structure.

(g) Containment berms placed around active fill areas shall be designed to control and collect the liquid volume resulting from the 25 year, 24-hour storm event. The design shall consider the volume of liquid generated from active

fill areas which shall include areas with exposed solid waste or areas with waste covered by daily cover. Storm water in contact with active fill areas shall be handled and treated as leachate in accordance with ch. NR 506.

(h) Storm water drainage ditches, structures and sedimentation basins shall discharge along existing drainage patterns capable of accepting the anticipated flow volume. An analysis shall be performed to determine the amount and velocity of runoff prior to landfill development and to document compliance with this requirement.

(i) Storm water diversion and construction at a landfill shall be designed to minimize impacts on adjacent property, such as erosion, sedimentation and flooding.

(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) MISCELLANEOUS. All landfills shall be designed to meet the following requirements:

(a) A method of controlling any dust or windblown debris shall be included in the landfill design. The factors which will be considered by the department when evaluating alternative provisions for controlling dust and windblown debris includes the remoteness of the landfill, natural screening, windbreaks and waste types.

(b) Access to the landfill shall be restricted through the use of fencing, natural barriers or other methods approved in writing by the department.

(c) All access roads for the landfill, including those leading to the active area, shall be designed for all weather operation.

(d) All access roads which are used by over the highway vehicles shall be designed with a maximum grade no greater than 10%. The intersection of the landfill access road with an existing highway shall be designed to provide sufficient sight distance and minimum interference with traffic on the highway.

(e) Unless otherwise approved by the department, all borrow areas shall be abandoned in accordance with s. 208.3, Wisconsin department of transportation standard specifications for road and bridge construction. Pre-existing commercial borrow sources are exempt from this requirement.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

(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 the adjacent property line.

(g) The landfill shall be designed so that final grades in each phase are reached as soon as possible, and the open area used for refuse filling is minimized.

(h) The final slopes of all landfills shall be equal to or greater than 5%, but may not exceed 4 horizontal to one vertical. Landfills primarily designed for the acceptance of papermill or wastewater treatment plant sludge shall have final slopes no greater than 6 horizontal to one vertical.

(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.

(j) All landfills which accept municipal solid waste shall be supplied with a weight scale.

(k) All landfills shall be designed with properly protected permanent benchmarks for horizontal and vertical control. Elevations shall be tied to USGS datum and horizontal control shall be referenced to the property boundary.

NR 504.10 ALTERNATIVE DESIGN CRITERIA FOR LANDFILLS ACCEPTING HIGH VOLUME INDUSTRIAL WASTES. This section applies to landfills designed principally for high volume industrial waste, wood residue and minor amounts of other wastes as approved by the department. This section applies to all new landfills and to the expansion of existing landfills for which the plan of operation was approved after February 1, 1988.

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

(b) If the applicant does not complete construction of the first major phase of the landfill within 2 years from the date of the plan of operation approval, the applicant shall reapply to the department for approval to construct the landfill. This application does not constitute a feasibility report as defined in s. 144.44 (2), Stats. The department may require additional conditions of approval and require redesign of the landfill in accordance with state-of-the-art design criteria.

(c) An owner or operator of a landfill which is designed primarily for disposal of high volume industrial waste may accept up to 10% by weight of municipal waste such as packaging which is generated in conjunction with the manufacturing process, and not be subject to the design requirements of s. NR 504.05(1). Household and plant waste not generated as a direct result of the manufacturing process such as office and cafeteria waste, may not be disposed of in a landfill which does not meet the requirements of s. NR 504.05(1).

(2) DESIGN CAPACITY. Design capacity shall be in accordance with s. NR 504.05(3).

(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:

(a) Landfill characteristics including regional and specific information on land use, geology, hydrology, hydrogeology and soils.

(b) Waste characteristics including quantity and physical and chemical analyses of the waste and its leachate.

(c) An analysis of any design to control geologic or hydrogeologic conditions of the site.

(d) Field demonstration data.

(e) Design and performance data for other similarly designed and constructed landfills.

(f) Accepted scientific or engineering analyses or field studies, field plots, research, manufacturer's data or demonstrations.

(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.

NR 504.11 MINIMUM DESIGN AND CONSTRUCTION CRITERIA FOR LANDFILLS ACCEPTING RESIDUE PRODUCED BY BURNING MUNICIPAL SOLID WASTE. (1) APPLICABILITY. This section applies to landfills designed for residue produced by the burning of municipal solid waste as approved by the department. This section applies to all new and existing landfills.

(2) LANDFILL DESIGN CRITERIA FOR RESIDUE PRODUCED BY BURNING MUNICIPAL SOLID WASTE.

(a) All landfills that accept municipal solid waste combustor residue that tests below the limits specified in s. NR 502.13(6)(g) shall be designed as composite lined monofill cells according to the following criteria:

1. The composite liner shall consist of a minimum 60 mil geomembrane overlying a minimum thickness of 4 feet of compacted clay meeting the specifications of s. NR 504.06.
2. The leachate collection system shall be designed such that the leachate from the residue monofill cell can be sampled and collected separately from non-residue disposal areas.
3. The department may approve alternate designs such as double liners if it finds that the design provides equivalent protection.

(b) All landfills that accept municipal solid waste combustor residue that exceeds the limits specified in s. NR 502.13(6)(g) shall be designed as a double composite lined monofill cell according to the following criteria. The department may approve alternate designs if it finds that the design provides equivalent protection.

1. The double composite liner shall be designed with 2 separate composite liners with each liner consisting of a minimum 60 mil geomembrane overlying a minimum thickness of 4 feet of compacted clay meeting the specifications of s. NR 504.06.

2. The composite liners shall be separated by a leachate detection layer consisting of a minimum one foot layer of granular material.

3. Separate leachate collection systems shall be designed above and between the composite liners. The leachate collection system shall be designed such that the leachate from the leachate detection layer can be sampled and collected separately from the upper leachate collection system and from the non-residue disposal areas.

(c) All landfills which accept municipal solid waste combustor residue shall be approved by the department in accordance with s. NR 514.07(5) prior to accepting each specific residue waste stream.

SECTION 126. NR 506.02(1) is amended to read:

NR 506.02(1) Except as otherwise provided, this chapter governs all solid waste disposal facilities as defined in s. 144.43 (5), Stats., except hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690 and metallic mining operations as defined in s. 144.81 (5), Stats., and regulated under ch. NR 182.

SECTION 127. NR 506.04 is repealed and recreated to read:

NR 506.04 OPEN BURNING. The department may approve burning of brush, grubbed material and other similar material in accordance with air management, solid waste management, and all other applicable regulations.

SECTION 128. NR 506.05(1) is repealed and recreated 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 shall be scarified or removed prior to placement of the next lift of solid waste.

SECTION 129. NR 506.05(2) is amended to read:

NR 506.05(2)(title) INDUSTRIAL AND COMMERCIAL WASTE. Unless otherwise specified by the department, high volume industrial waste is not subject to daily cover requirements, unless disposed of in a municipal solid waste landfill. All ~~processed municipal solid waste,~~ other industrial waste and commercial waste shall be compacted and completely covered at the end of each operating day with a compacted layer of at least 6 inches of soil or other material approved in writing by the department. ~~High volume industrial waste is not subject to daily cover requirements unless specifically required by the department.~~ The department may grant an exemption in writing for less frequent covering. In granting such exemptions, the department shall consider the

characteristics of the solid waste, the leaching potential of the solid waste and the potential for nuisance conditions if other than daily covering is utilized.

SECTION 130. NR 506.055 is created to read:

NR 506.055 ALTERNATE DAILY COVER. (1) FACILITIES SEEKING APPROVAL. An owner or operator of a solid waste landfill seeking approval from the department to use an alternate daily cover material shall submit the following information:

(a) Type of material to be used, including its chemical and physical properties as required in s. NR 506.09. A discussion of the material's successful use at other solid waste landfills in controlling vectors, windblown material and odors may be required.

(b) Method and rate of application.

(c) Conditions when alternate daily cover cannot be used, including but not limited to weather conditions, equipment breakdown, ability to obtain a sufficient quantity of alternate daily cover, maximum time alternate daily cover can be exposed, and a discussion of back-up cover materials for use when alternate cover cannot be used.

(d) Discussion of how the alternate cover material will be stored on-site prior to its use, including measures to be taken to prevent transportation of contaminants to groundwater and surface water, and prevention of windblown nuisances.

(2) MANDATED USE OF ALTERNATE DAILY COVER. Upon request from a person operating a foundry or a scrap dealer in the state of Wisconsin, the department shall require that a person operating a municipal solid waste landfill accept and use the requested foundry sand or shredder fluff for cover at part or all of the landfill for the period specified in the request if all of the following conditions are met:

(a) The foundry operator or scrap dealer agrees to transport the foundry sand or shredder fluff to the landfill either daily or on another schedule acceptable to the municipal solid waste landfill operator.

(b) The department approves the use of the foundry sand or shredder fluff for cover at the landfill.

(c) The landfill operator is not contractually bound to obtain cover from another source.

(d) The amount of cover to be provided by the requesting foundry operator or scrap dealer does not exceed the amount of cover required under the plan of operation for the landfill less any cover provided by another foundry operator or scrap dealer.

(3) GENERAL APPROVAL FOR THE USE OF ALTERNATE DAILY COVER. The department may issue general approvals for use of specific alternate daily cover materials which have been demonstrated to control disease vectors, fires, odors, blowing

litter and scavenging without presenting a threat to human health and the environment.

SECTION 131. NR 506.06 is amended to read:

NR 506.06 Unless otherwise approved by the department in writing, any portion of a ~~solid waste land disposal facility~~ landfill which has been used for solid waste disposal but will not receive additional solid waste for a period exceeding 6 months shall be covered with one foot of fine grained intermediate cover or other material approved by the department. 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. The slopes shall be no less than 5% and no greater than 33%. 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 industrial waste ~~or~~ 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~~(2)~~ (3) (b), unless specifically required by the department.

SECTION 132. NR 506.07(intro) is amended to read:

NR 506.07(intro) No person may operate or maintain a new or existing ~~land disposal facility~~ landfill except in conformance with any approved plan of operation and the following minimum requirements:

SECTION 133. NR 506.07(1)(a) is amended to read:

NR 506.07(1)(a) Daily ~~deposition~~ disposal of solid waste shall be confined to as small an area as practical.

SECTION 134. NR 506.07(1)(c) is amended to read:

NR 506.07(1)(c) At the conclusion of each day of operation, all windblown material shall be collected and properly disposed of in the active area in accordance with the provisions of this section unless the operator establishes, to the satisfaction of the department, that all windblown material cannot be collected using reasonable efforts because of conditions beyond the control of the operator, and windblown material which can be collected using a reasonable effort has been collected and properly disposed ~~of~~ and nuisance conditions do not exist.

SECTION 135. NR 506.07(1)(d) is repealed.

SECTION 136. NR 506.07(1)(j) and (o) are repealed.

SECTION 137. NR 506.07(1)(e) to (u) are renumbered to NR 506.07(1)(d) to (t) and (e), (g), (k), (l), (m), (q), (r), and (t) as renumbered are amended to read.

NR 506.07(1)(e) Access to the ~~facility~~ landfill shall be restricted through the use of fencing, natural barriers or other methods approved in writing by the department.

(g) Effective means shall be taken to control birds, flies, rodents, deer and other ~~insects and vermin~~ animals.

(k) The gate area shall be policed at the beginning of each day of operation to remove any solid waste which has been indiscriminately dumped during periods when the ~~facility~~ landfill was closed.

(l) A sign, acceptable to the department shall be posted at the entrance of any ~~facility~~ landfill operated for public use which indicates the ~~facility~~ landfill name, license number, the hours of operation, waste types accepted, penalty for unauthorized use, necessary safety precautions and any other pertinent information.

(m) The ~~facility~~ landfill shall be surrounded with rapidly growing trees, shrubbery, fencing, berms or other appropriate means to screen it from the surrounding area and to provide a wind break.

(q) A minimum separation distance of 20 feet shall be maintained between the limits of ~~waste~~ filling and adjacent property or the perimeter of the licensed acreage, whichever is closer at nonapproved facilities as defined in s. ~~144.44(1)(c)~~ 144.441(1)(c), Stats. A At all other facilities, a minimum separation distance of 100 feet shall be maintained between the limits of solid waste filling and the property boundary or the perimeter of the licensed acreage, whichever is closer ~~for all new and expanded facilities and all approved facilities as defined in s. 144.44 (1) (a), Stats~~. The department may require additional separation distance if necessary to provide for vehicle access, drainage, monitoring, gas migration control, separation to adjacent homes or other ~~facility~~ landfill development factors.

(r) All topsoil within the ~~facility~~ landfill construction limits shall be salvaged and stored within the property boundaries for use in ~~facility~~ landfill closure. All stockpiled soil material which is not anticipated to be used within 6 months shall be seeded.

(t) All access roads for the use of solid waste hauling trucks shall be constructed with a maximum grade no greater than 10%. The intersection of the access road with an existing highway shall be constructed to provide sufficient sight distance and ~~provide for minimum~~ minimize interference with traffic on existing highways.

SECTION 138. NR 506.07(1)(i) and (n) are created to read:

NR 506.07(i) As required in s. NR 524.05, a trained operator or certified facility manager shall be present at the landfill during all hours of operation, and a list of names of trained operators and certified facility managers shall be maintained at the landfill.

(n) Fugitive dust shall be controlled in accordance with s. NR 415.04 from all areas of the landfill.

SECTION 139. NR 506.07(2) to (6) are renumbered NR 506.07(3) to (7) and NR 506.07(3), (4), (5), (6) and (7) as renumbered are amended to read.

NR 506.07(3)(a) ~~For all landfills designed with liners, deposition of waste on the granular drainage blanket~~ Disposal of solid waste shall begin at the edge of each phase. Waste shall be pushed out over the granular blanket. Vehicles may not be driven directly on the granular blanket. Alternative operating procedures may be approved by the department if the consistency of the solid waste prevents vehicular access over a filled area.

(b) ~~For all landfills designed with liners,~~ Except for portions of the sideslope greater than 10 feet above the base liner, a layer of solid waste at least 4 feet thick or an adequate amount of other frost protection material shall be placed over the granular blanket in all portions of the lined area prior to December ~~31st~~ 1st of the year following the year the clay portion of the liner was constructed. ~~Waste~~ After this date, solid waste may not be placed ~~during the winter~~ on any portion of the base liner or lower 10 feet of the sideslope not ~~having~~ covered with a 4-foot thick layer of solid waste or other adequate frost protection material ~~covering it after December 31st each year~~. Those portions of the ~~clay~~ base liner or lower 10 feet of sideslope not covered with a 4-foot thick layer of solid waste or other frost protection material by this date shall be investigated for density and effects from freeze-thaw as specified by the department and shall be ~~recompacted~~ repaired and recertified during the next construction season if required, prior to waste placement. The requirements of this paragraph may be waived by the department ~~upon the request of the owner~~.

(c) To provide for maximum compaction after the initial 4-foot lift of waste is placed, each single layer of municipal solid waste shall be spread and compacted in 2-foot layers.

(4) Effective means shall be utilized to prevent the migration of explosive gases generated by the waste fill. At no time shall the concentration of explosive gases in any ~~facility~~ landfill structure, excluding the leachate collection system or gas control ~~or~~ and recovery system components~~, or~~ exceed 25% 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 ~~at~~ within 200 feet of or beyond the ~~facility~~ landfill property boundary exceed ~~25% of~~ the lower explosive limit for such gases. The department may require the concentration of explosive gases not exceed ~~the lower detection limit~~ detectable levels for that gas at the ~~facility~~ landfill property boundary.

(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. ~~All~~ Unless the facility has received 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 ~~discharge~~ 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 waste or accumulates in a portion of the ~~facility~~ 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, ~~after the first layer of waste has been placed over an entire phase~~ and annually thereafter.

(6) Documentation for non-commercial borrow sources which are developed for the construction, operation or closure of a specific landfill shall comply with ch. NR 509 for an initial site inspection. Documentation for all non-commercial clay borrow sources for liners or capping layers which are developed exclusively for a specific landfill shall comply with ch. NR 509 for an initial site inspection and with s. NR 512.15 for clay borrow source documentation. Documentation for commercial clay borrow sources for liners or capping layers shall identify the land owner, location by quarter - quarter section, and the current commercial use and shall comply with s. NR 512.15(2) and (3) for clay borrow source documentation. The preceding requirements do not apply to borrow sources approved as part of the feasibility determination under ch. NR 512. All borrow areas established after February 1, 1988 shall be abandoned in accordance with section 208.3, Wisconsin department of transportation standard specifications for road and bridge construction, and s. NR 135.02(3)(i) [Drafter's Note: NR 135 is proposed as Clearinghouse Rule no. 95-041] non-metallic mining reclamation standards.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

(7) ~~Each phase of the facility shall have final cover placed over it as soon as possible after final grades are reached. By September 15th~~ For all landfills that do not have a department-approved plan for phased development and closure, by October 15th of each year, any areas that are at final grades shall be capped, topsoiled and seeded unless otherwise approved by the department.

SECTION 140. NR 506.07(2) is created to read:

NR 506.07(2) SEDIMENTATION AND EROSION CONTROL. (a) All areas of the landfill property, including areas of temporary disturbance, with the potential for off-site migration of sediment shall be designed, constructed and maintained in accordance with the applicable requirements of s. NR 504.09(1), and best management practices, which include the following:

1. Storm water shall be diverted away from the working area and areas already filled with solid waste.
2. Storm water from upslope areas shall be diverted around disturbed areas to minimize erosion, entrained sediment and the amount of water contacting the disturbed area.

3. The size and duration of disturbances shall be minimized, to the extent practicable, to minimize off-site sediment migration.

4. While the site is disturbed, temporary measures shall be used to trap sediment and off-site sediment migration. This could include gravel breaks or the equivalent to minimize the transport of sediments offsite.

5. Runoff channels shall be protected to prevent scour and erosion that generates sediment.

Note: Best management practice is detailed in "Wisconsin Construction Site Best Management Practice Handbook" published by the Wisconsin department of natural resources management nonpoint source and land management section.

(b) Storm water drainage ditches, structures and sedimentation basins shall be cleaned and maintained such that they properly control storm water and limit entrained sediment in accordance with approved engineering designs. The department may waive this requirement on a case by case basis for existing facilities.

(c) All areas of the landfill which will not contain solid waste and are planned for vegetative cover shall be topsoiled, seeded and mulched as soon as practical, but no later than 90 days after completion of construction or by October 15, whichever is earlier and, if construction is completed after September 15, no later than June 15 of the following year. This includes, but is not limited to, the landfill entrance, drainage ditches, and surrounding areas. Erosion control measures shall be placed within 30 days after completion of construction. The seed type and amount of fertilizer applied shall be selected according to: the type and quality of topsoil, it's compatibility with native vegetation and the final use. Unless otherwise approved by the department in writing, seed mixtures and applications rates shall be in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction.

Note: Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

SECTION 141. NR 506.08(intro) is amended to read:

NR 506.08(intro) Any person who maintains or operates a ~~land disposal facility~~ landfill, or who permits use of property for such purpose shall, when the fill area or portion thereof reaches final grade, or when the department determines that closure is required, cease to accept solid waste and close the ~~facility~~ landfill or portion thereof in accordance with the plan approval issued by the department and the following minimum practices unless otherwise approved by the department in writing:

SECTION 142. NR 506.08(1)(a) and (b) are amended to read:

NR 506.08(1)(a) At least 120 days prior to closing the ~~facility~~ landfill, the owner or operator shall notify the department in writing of the intent to close the ~~facility~~ landfill and the expected date of closure. Prior to this date, the owner or operator shall notify all users of the ~~facility~~ landfill of the intent

to close the ~~facility~~ landfill so that alternative disposal options can be arranged.

(b) Signs shall be posted at all points of access to the ~~facility~~ landfill at least 30 days prior to closure indicating the date of closure and alternative disposal facilities. Facilities which are operated by and serve only a single waste generator and are not open to the public are exempt from this provision.

SECTION 143. NR 506.08(2) is amended to read:

NR 506.08(2) Within 10 days after ceasing to accept solid waste, the owner or operator shall restrict access by the use of gates, fencing or other appropriate means to insure against further use of the ~~facility~~ landfill. If the final use allows access, such access shall be restricted until closure has been completed and approved by the department.

SECTION 144. NR 506.08(3)(intro) is amended to read:

NR 506.08(3)(intro) ~~Within 60~~ Closure activities shall begin within 30 days after ceasing to accept solid waste~~, closure~~ . 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 the effective date of this rule ... [revisor inserts date]. 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 the effective date of this rule ... [revisor inserts date].

SECTION 145. NR 506.08(3)(a) to (c) are amended to read:

NR 506.08(3)(a) The entire area previously used for disposal purposes shall be covered with at least 2 feet of compacted earth having a hydraulic conductivity of no more than $1x10^{-5}$ cm/sec or if the hydraulic conductivity of the underlying soils or any base liner system is less than $1x10^{-5}$ cm/sec, then the 2 feet of compacted earth shall have a hydraulic conductivity that is equal to or less than the underlying soils or any base liner system. The final grades shall be sloped adequately to allow storm water runoff. A specific soil type may be required by the department for this 2-foot layer. The department may require the cover layer to be more than 2 feet thick.

(b) Storm water run-on shall be diverted around all areas used for solid waste disposal to limit the potential for erosion of the cover soils and increased infiltration. Drainage swales conveying storm water runoff over previous solid waste disposal areas shall be lined with a minimum thickness of 2 feet of clay.

(c) The final slopes of the ~~facility~~ landfill shall be greater than ~~2~~ 5%, but ~~shall~~ may not exceed ~~3~~ 4 horizontal to one vertical unless otherwise approved by the department.

SECTION 146. NR 506.08(4) is amended to read:

NR 506.08(4) Within ~~90~~ 180 days after ceasing to accept solid waste, or if solid waste termination is after September 15, ~~within 90 days after March 15~~ by June 15 of the following year, the owner or operator shall complete seeding, fertilizing and mulching of the finished surface. The seed type and amount of fertilizer applied shall be selected depending on the type and quality of topsoil and compatibility with both native vegetation and the final use. Unless otherwise approved by the department in writing, seed mixtures and applications rates shall be those specified for right-of-ways in accordance with section 630, Wisconsin department of transportation standard specifications for road and bridge construction.

SECTION 147. A NOTE following NR 506.08(4) is created to read:

NR 506.08(4) **Note:** Copies of Wisconsin department of transportation standard specifications for road and bridge construction can be obtained from the department of natural resources, bureau of solid waste management, 101 s. webster street, Madison, Wisconsin 53707. Copies are also available for inspection at the offices of the revisor of statutes and the secretary of state.

SECTION 148. NR 506.08(5) is repealed and recreated to read:

NR 506.08(5) DEED NOTATION. Following closure of a landfill phase which accepted municipal solid waste after the effective date of this rule ... [revisor inserts date] the owner or operator shall, within 90 days after closure, record a notation on the deed to the landfill property. 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.

SECTION 149. NR 506.08(6) is amended to read:

NR 506.08(6) All ~~solid waste disposal facilities~~ landfills which 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 ~~facility~~ 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 150. NR 506.085 is created to read:

NR 506.085 FINAL USE. The following activities are prohibited at solid waste disposal facilities which are no longer in operation unless specifically approved by the department in writing:

(1) Use of the waste disposal area for agricultural purposes.

(2) Establishment or construction of any buildings over the waste disposal area.

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

Note: Activities at closed solid waste disposal facilities shall be restricted in accordance with the applicable transference of responsibility provisions of s. 144.444 (2), Stats.

SECTION 151. NR 506.09(1) is repealed and recreated to read:

NR 506.09(1) GENERAL. No person may dispose in a landfill prohibited items under s. NR 506.095. Wastes which are limited under ss. NR 506.10 to 506.155 may only be disposed in accordance with those sections. Solid waste which are not prohibited or limited under ss. NR 506.095 to 506.155 and which do not constitute more than 5% of the total proposed design capacity may be disposed without additional department approval providing they do not pose a significant threat to landfill operations, leachate or landfill gas quality, or groundwater quality, and they are handled in accordance with an approved special waste management plan. The physical and chemical characteristics of any high volume industrial waste stream such as foundry process waste, papermill sludge, utility coal-ash wastes, and other non-municipal waste streams that are anticipated to individually constitute more than 5% of the total proposed design capacity shall be analyzed and described in accordance with this section.

SECTION 152. NR 506.09(2)(a) is amended to read:

NR 506.09(2)(a) Detailed physical and chemical characteristics including percent solids, material safety data sheets where appropriate and the results of the paint filter test.

SECTION 153. NR 506.095 is created to read:

NR 506.095 PROHIBITED ITEMS. No person may dispose of the following in a landfill:

(1) Lead acid batteries.

(2) Major appliances.

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

(a) Material containing, or otherwise contaminated with, minimal amounts of oil from which the oil has been removed to the extent possible such that no visible signs of free flowing oil remain in or on the material, may be disposed of in a solid waste landfill, provided the material is not listed or identified as a hazardous waste.

Note: The department encourages the recycling of used oil including oil-soaked rags and similar materials, by use of laundering services, burning for energy recovery and other recycling methods.

Note: Disposal of petroleum contaminated soil and materials into solid waste disposal facilities shall be done in accordance with the applicable provisions of chs. NR 419, 590 and 722.

(b) Oil drained or removed from materials containing or otherwise contaminated with oil is subject to regulation as used oil.

Note: The department encourages that solid waste material from which oil is removed, such as used oil filters that have been drained in accordance with s. NR 605.05(1)(v), be recycled. If the material cannot be recycled, it should be properly characterized and disposed of in accordance with the requirements of chs. NR 500 to 536 and 600 to 690.

(c) No person may mix oil with other material for the purpose of avoiding the prohibition of s. 159.07(1m)(b), Stats.

(4) Yard waste.

(5) Solid waste that contains any material identified in s. 159.07(3), Stats., that is generated in a region, as defined in s. 159.01(8), Stats., that does not have an effective recycling program as determined under s. 159.11, Stats., and ch. NR 544, unless the material is subject to an exemption, waiver or beneficial use approval under s. 159.07 (7), Stats. This subsection does not apply to any material identified in s. 159.07(3), 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 s. 159.07(3), Stats., that is separated for recycling as part of an effective recycling program under s. 159.11, Stats., and ch. NR 544, unless the department has granted a variance under s. 159.11 (2m) (d), Stats.

SECTION 154. NR 506.10(intro) is amended to read:

NR 506.10(intro) No person may dispose of asbestos <u>containing material</u> at a solid waste ~~disposal facility~~ <u>landfill</u> except in conformance with the following minimum requirements:

SECTION 155. NR 506.10(1) is repealed and recreated to read:

NR 506.10(1) LANDFILL CRITERIA. (a) Except as provided in par. (c), only approved facilities as defined in s. 144.441(1)(a), Stats., may accept asbestos containing material for disposal.

(b) The following asbestos containing materials may be accepted only at landfills engineered with a liner and leachate collection system which are approved to accept asbestos. The department may approve other landfills on a case by case basis.

1. Category I non-friable asbestos containing material, which is not construction and demolition material,
2. Category II non-friable asbestos containing material,
3. Friable asbestos material.

(c) Construction and demolition materials containing category I non-friable asbestos may be disposed of at construction and demolition waste landfills approved in accordance with ch. NR 503 and approved facilities as defined in s. 144.441 (1)(a), Stats.

SECTION 156. NR 506.10(2)(a) is amended to read:

NR 506.10(2)(a) Unless an alternative handling procedure is approved by the department, ~~asbestos~~ category II nonfriable asbestos containing material and friable asbestos material shall be disposed of ~~at the base of the active working face. A specific disposal trench shall be excavated into existing refuse. Asbestos shall be placed into the excavated trench~~ in a trench excavated into existing refuse and shall ~~immediately~~ be covered with a minimum of 3 feet of non-asbestos solid waste or soil prior to compaction.

SECTION 157. NR 506.10(2)(b) and (c) are repealed and recreated to read:

NR 506.10(2)(b) The location of category II nonfriable asbestos containing material and friable asbestos material disposal within the landfill shall be recorded by horizontal and vertical coordinates and maintained in accordance with s. NR 506.17.

(c) Category II nonfriable asbestos containing material and friable asbestos material may not be placed in previous asbestos disposal areas or areas proposed for future landfill construction, including leachate headwells and gas collection wells.

Note: All applicable safety measures required by chs. NR 400 to 499, and EPA and OSHA, specifically, those requirements dealing with the safety of personnel working with the asbestos, shall be followed. U.S. EPA 40 CFR Part 61 "National Emission Standards for Hazardous Air Pollutants (NESHAP)" contains additional requirements for the disposal of asbestos containing materials.

SECTION 158. NR 506.105 is created to read:

NR 506.105 UNTREATED CONTAMINATED UNCONSOLIDATED MATERIAL. Except as provided in s. NR 506.095(3) and this section, untreated contaminated unconsolidated material which is the result of a remediation conducted under chs. NR 700 to 736, or a remediation conducted in another state under the laws of that state, may not be disposed at a landfill, unless the disposal is in compliance with ss. NR 419.07 and 722.09 (4), and the landfill's approved plan of operation. Untreated contaminated unconsolidated material other than untreated petroleum contaminated soil which is the result of a remediation conducted under chs. NR 700 to 736, or a remediation conducted in another state under the laws of that state, may be approved by the department for use as daily cover, in construction of soil structures within a landfill, or disposal on a case by case basis. Unconsolidated material has the meaning specified in s. NR 722.03 (2).

Note: "Unconsolidated material" means soil, sediment or other granular material, such as fill, not including debris.

Note: Absorbents used to clean up oil spills are regulated under s. NR 506.095 and ch. NR 590.

(1) USE OF UNTREATED PETROLEUM CONTAMINATED SOIL. (a) Untreated petroleum contaminated soil may be used as landfill daily cover if all of the following conditions are met:

1. The volume of untreated petroleum contaminated soil that is proposed to be used as daily cover does not exceed either the landfill's net daily cover needs or 12.5% of the annual volume of waste received by the landfill.
2. The use of untreated petroleum contaminated soil as daily cover will not impair operation of the landfill, cause windblown problems, ponding of storm water or other nuisance conditions. Clay soils may not be used as daily cover.
3. The landfill has a liner and leachate collection system meeting the requirements of s. NR 504.06.
4. The requirements of subs. (2) to (4) are complied with.

(b) Untreated petroleum contaminated soil may be used in the construction of soil structures within the fill area when approved for that specific use by the department.

(c) Untreated petroleum contaminated soil may be disposed in a landfill other than as daily cover or in the construction of soil structures within the landfill only if approved by the department in the plan of operation for the landfill.

(d) Except as provided in pars. (a) to (c), no person may dispose of untreated petroleum contaminated soil in a landfill other than as daily cover or in the construction of soil structures within the landfill unless the department determines, on a case by case basis, that there is no practicable treatment alternative, and the department approves the disposal in writing.

(e) Petroleum contaminated soil which has been treated such that the concentration of volatile organic compound contaminants in the soil does not exceed 250 milligrams per kilogram is not subject to this section.

Note: Responsible parties must comply with s. NR 722.07(3) by completing a written evaluation of recycling or treatment technologies.

(2) VOLUME LIMITATIONS. (a) Except as provided in par. (b) or (c), the volume of untreated petroleum contaminated soil from a single clean-up site or facility that is proposed for landfill disposal may not exceed 250 cubic yards as measured in situ.

(b) Except as provided in par. (c), untreated volumes of petroleum contaminated soil from a single clean-up site or facility that exceed 250 cubic yards may be disposed of in a licensed landfill with a department approved composite liner, or a liner that is equivalent to a composite liner in terms of environmental protection as determined by the department, if approved by the department in the plan of operation for the landfill.

(c) Volumes of untreated petroleum contaminated soil from a single clean-up site or facility that exceed 2,000 cubic yards may be disposed of in a landfill only if prior written approval of a remedial action options report is obtained in accordance with s. NR 722.13 and approved in the landfill's plan of operation.

(3) MAXIMUM ORGANIC COMPOUND CONCENTRATION. No person may accept for disposal in a landfill untreated petroleum contaminated soil having an average organic

compound concentration exceeding 2,000 mg/kg except for soils managed in accordance with ch. NR 708. For volumes of material less than 55 gallons the department may waive this prohibition in writing if the department finds that there are no practicable treatment alternatives. The department may accept knowledge in lieu of testing for specific waste types.

Note: The average organic compound concentration for untreated petroleum contaminated material is generally measured by diesel range organic compounds (DRO), gasoline range organic compounds (GRO), petroleum volatile organic compounds (PVOC), or polycyclic aromatic hydrocarbon compounds (PAH), alone or in combination.

Note: NR 419 imposes the following limits:
- o For ozone nonattainment areas the concentration of volatile organic compound contaminants in the soil accepted may not exceed 250 mg/kg.
- o For ozone attainment areas, in all contaminated soils accepted with a volatile organic compound concentration of greater than 250 mg/kg, the total quantity of volatile organic compounds may not exceed 25 tons per year.

Note: Material contaminated with polychlorinated biphenyls (PCBs) must be managed in accordance with the requirements of ch. NR 157 and this chapter.

(4) RECORD KEEPING. Except as otherwise provided in par. (b), the owner or operator of a landfill which accepts untreated contaminated unconsolidated material having an average organic compound concentration exceeding 250 mg/kg in accordance with this section shall maintain records in accordance with s. NR 506.17 and the following:

(a) Records shall be maintained of the volume of materials received, the average organic compound concentration, the average benzene concentration, and the location for each site from which untreated petroleum contaminated soil is accepted at the landfill.

(b) Records shall be maintained on an on-going basis and summarized annually of the accumulated total pounds of organic compounds and accumulated pounds of benzene accepted in untreated petroleum contaminated soils at the landfill. The department may waive this requirement if an alternative air monitoring program for VOC emissions is approved by the department in accordance with ch. NR 419.

(c) The tonnage records of untreated petroleum contaminated soil accepted annually shall be summarized and submitted with the annual tonnage certification report as required by s. NR 520.14(4). A summary of all records listed in pars. (a) and (b) shall be submitted as part of the annual report required in s. NR 506.19.

SECTION 159. NR 506.12 (intro) is amended to read:

NR 506.12(intro) No person may dispose of ultra low-level radioactive waste at a ~~solid waste disposal facility~~ landfill except in accordance with the following ~~minimum requirements:~~ .

SECTION 160. NR 506.12(1)(title) is amended to read:

NR 506.12(1)(title) LANDFILL CRITERIA. Only ~~facilities~~ landfills meeting the following criteria may accept ultra low-level radioactive waste for disposal:

SECTION 161. NR 506.12(1)(a) and (b) are amended to read:

NR 506.12(1)(a) The ~~facility~~ landfill shall be a licensed and approved ~~facility~~ landfill as defined in s. 144.441(1)(a), Stats.

(b) The ~~facility~~ landfill shall be approved by the department in writing to accept ultra low-level radioactive waste.

SECTION 162. NR 506.12(2)(intro) is amended to read:

NR 506.12(2)(intro) The following criteria also apply to ~~facilities~~ landfills proposing to accept ultra low-level radioactive waste:

SECTION 163. NR 506.13(1) is amended to read:

NR 506.13(1) An owner or operator of a solid waste ~~facility~~ landfill used for the disposal of municipal solid waste may not accept ~~waste containing free liquids amounting to nor more than 55 gallons on a one-time basis provided that the material is tested and determined to be non-hazardous, the criteria contained in sub. (2)(a) and (b) are complied with and the department is notified and provided with all testing information prior to disposal. The department may require additional information if deemed necessary.~~ containers holding liquid waste unless:

SECTION 164. NR 506.13(1)(a) to (d) are created to read:

NR 506.13(1)(a) The container is small and similar in size to that normally found in household waste;

(b) The container is designed to hold liquids for use other than storage;

(c) It is not practicable to recycle the container or the material contained; or

(d) The waste is household waste.

SECTION 165. NR 506.13(2) is amended to read:

NR 506.13(2) Solid waste ~~facilities~~ landfills used for the disposal of municipal solid waste ~~shall~~ may not accept waste containing free liquids ~~unless the facility meets the criteria contained in s. NR 506.14(2)(a) and (b), is in substantial compliance with the minimum design criteria specified in s. NR 504.05 and the material is specifically approved in writing by the department. The information specified in NR 506.14(2)(d) shall be submitted when requesting an approval under this section~~ except as provided in sub. (1) or unless the landfill has received approval from the department to recirculate leachate or gas condensate derived from the landfill. Recirculation of leachate or gas condensate will be considered only for landfill phases designed with a composite liner and efficient leachate collection system.

SECTION 166. NR 506.13(3) is amended to read:

NR 506.13(3)(title) FACILITIES THAT DO NOT ACCEPT MUNICIPAL SOLID WASTE. An owner or operator of any ~~nonmunicipal solid waste disposal facility~~ landfill that does not accept municipal solid waste may accept waste containing free liquids only in accordance with plans approved by the department in writing.

SECTION 167. NR 506.14(1) is amended to read:

NR 506.14(1) An owner or operator of a solid waste ~~facility~~ landfill used for the disposal of municipal solid waste may accept sludge wastes amounting to less than 50 cubic yards per year per generator provided that the material is tested and determined to be non-hazardous, the criteria contained in sub. (2) (a) to (c) ~~and~~ are complied with and the department is notified and provided with all testing information prior to disposal. The department may require additional information if deemed necessary.

SECTION 168. NR 506.14(2) is amended to read:

NR 506.14(2)(title) MUNICIPAL SOLID WASTE DISPOSAL LANDFILLS. An owner or operator of a solid waste ~~facility~~ landfill used for the disposal of municipal solid waste ~~shall~~ may not accept sludge wastes for disposal unless the small quantity exemption requirements provided in sub. (1) are met, or unless all of the following criteria are complied with:

SECTION 169. NR 506.14(2)(a) is amended to read:

NR 506.14(2)(a) The ~~facility~~ landfill shall be a licensed and approved ~~facility~~ landfill under s. 144.441(1)(a), Stats.

SECTION 170. NR 506.14(2)(b) is amended to read:

NR 506.14(2)(b) The proposed ~~facility~~ landfill shall be in compliance with all solid waste regulations and any plan of operation approval.

SECTION 171. NR 506.14(2)(d) is amended to read:

NR 506.14(2)(d) A report ~~shall be~~ has been submitted to and approved by the department which addresses the physical and chemical characteristics of the waste including the percent solids; the weight and volume of material produced; the frequency of waste generation; the amount of additional liquid which would be added over a specified time frame; ~~revised water balance and liner efficiency calculations to account for the additional liquids added;~~ methods for handling the additional gas generation and any proposed changes to the groundwater, surface water, unsaturated zone or leachate monitoring programs.

SECTION 172. NR 506.14(2)(e) is amended to read:

NR 506.14(2)(e) ~~A quarterly~~ An annual report is submitted which documents the daily mixing ratios of each sludge waste to municipal solid waste on both a weight and volume basis and any operational problems.

SECTION 173. NR 506.14(3) is amended to read:

NR 506.14(3) An owner or operator of any ~~nonmunicipal solid~~ waste disposal facility other than a municipal solid waste landfill may accept sludge which does not contain free liquids only in accordance with plans approved by the department.

SECTION 174. NR 506.15(1) is amended to read:

NR 506.15(1) No person may operate or maintain a ~~facility~~ landfill for the disposal of residue produced by the burning of municipal solid waste, except in accordance with this section and the written approval of the department.

SECTION 175. NR 506.15(2)(title) and (intro) are amended to read:

NR 506.15(2)(title) LANDFILL CRITERIA.(intro) Only ~~facilities~~ landfills meeting the following criteria may accept municipal solid waste combustor residue for disposal:

SECTION 176. NR 506.15(2)(a) and (b) are amended to read:

NR 506.15(2)(a) The ~~facility~~ landfill shall be a licensed and approved ~~facility~~ landfill as defined in s. 144.441(1)(a), Stats. The department may grant an exemption to this provision if the ~~facility~~ landfill owner or operator can demonstrate substantial compliance with the design criteria in s. NR ~~504.08~~ 504.11.

(b) The ~~facility~~ landfill shall ~~obtain approval from~~ be approved by the department in writing prior to accepting residue from each municipal solid waste combustor source. The ~~facility~~ landfill may accept only residue from municipal solid waste combustors designated in the municipal solid waste combustor residue disposal plan included in the initial plan of operation approval or a modification to the original approval granted under ~~ch. NR 514~~ s. NR 514.07(5).

SECTION 177. NR 506.15(2)(c) to (e) are created to read:

NR 506.15(2)(c) The landfill area used for disposal shall be designed and constructed, at a minimum, as a composite lined monofill meeting the requirements of s. NR 504.11(2)(a). Operators of medical waste combustors with a design capacity of less than 10 tons per day may apply to the department for a written exemption to this requirement. All municipal solid waste combustor residue that meets or exceeds the test limits specified in s. NR 502.13(6)(g) or subsequent confirmation testing as specified in s. NR 502.13(6)(h), and is not subsequently treated to below those limits, may not be disposed of in a

municipal solid waste landfill and shall be managed in accordance with chs. NR 600 to 690.

(d) The landfill shall maintain a storm water control system approved by the department.

(e) The landfill shall maintain access control to the landfill.

SECTION 178. NR 506.15(3) is amended to read:

NR 506.15(3) No person may operate or maintain a new or existing ~~disposal facility~~ landfill that accepts residue produced by the burning of municipal solid waste except in conformance with all provisions of a municipal solid waste residue disposal plan approved under s. ~~NR 514.08~~ NR 514.07(5), the applicable portions of s. NR 506.07 and the following minimum requirements:

SECTION 179. NR 506.15(3)(e) is amended to read:

NR 506.15(3)(e) The department may approve alternatives to daily cover such as water or foam if it can be demonstrated that the residue will not become ~~wind-blown~~ windblown.

SECTION 180. NR 506.155(intro) is amended to read:

NR 506.155(intro) No person may accept hazardous waste from very small quantity generators ~~which are~~ excluded from regulation under s. NR 610.07 ~~at a solid waste disposal facility unless the facility meets the requirements of~~ , except in accordance with this section and the written approval of the department.

SECTION 181. NR 506.155(1) is amended to read:

NR 506.155(1)(title) LANDFILL CRITERIA. ~~A facility may not~~ No person may accept hazardous waste from very small quantity generators for disposal at a landfill unless all the following criteria are met:

SECTION 182. NR 506.155(1)(a) to (c) are amended to read:

NR 506.155(1)(a) The ~~facility~~ landfill is a licensed and approved ~~facility~~ landfill as defined in s. 144.441(1)(a), Stats.;

(b) The ~~facility~~ landfill is in compliance with all solid waste regulations and any plan approval; and

(c) The ~~facility~~ landfill is in ~~substantial~~ compliance with the minimum design criteria specified in s. NR 504.05.

SECTION 183. NR 506.155(2) is amended to read:

NR 506.155(2) No person may accept hazardous waste from very small quantity generators for disposal in a solid waste ~~disposal facility from very small quantity generators~~ landfill unless:

SECTION 184. NR 506.16 is renumbered to NR 506.18 and as renumbered is amended to read:

NR 506.18 ENFORCEMENT. The department may deny, suspend or revoke the operating license of a solid waste disposal facility as provided in s. 144.44(4)(a), Stats., for failure to pay fees required under ss. 144.43 to 144.47, Stats., or for grievous and continuous failure to comply with the approved plan of operation under s. 144.44(3), Stats., or, if no plan of operation exists with regard to the ~~facility~~ landfill, for grievous and continuous failure to comply with any requirement of chs. NR 500 to ~~522~~ 536. Any failure to comply with any such requirement or condition on 5 or more days within any 30 successive calendar days and which consists of action or inaction which may cause pollution as defined in s. 144.01(10), Stats., or which may otherwise create nuisance conditions, is a grievous and continuous failure to comply with the requirement or condition.

SECTION 185. NR 506.16 and NR 506.17 are created to read:

NR 506.16 PROCEDURES FOR EXCLUDING THE RECEIPT OF WASTE NOT SPECIFICALLY APPROVED FOR ACCEPTANCE AT THE LANDFILL. Owners and operators of landfills that accept municipal solid waste shall implement a program at the landfill for detecting and preventing the disposal of waste not specifically approved for acceptance including but not limited to liquids, sludges, regulated hazardous waste and PCB waste. The program shall include the following:

(1) RANDOM INSPECTIONS OF INCOMING LOADS. Random inspections shall be made of every incoming load of solid waste unless the owner or operator receives approval in writing from the department to take other steps to insure that incoming loads do not contain wastes not specifically approved for acceptance.

(a) Inspections shall be conducted on every 5,000 tons of solid waste accepted or one inspection per month, whichever is more frequent. No more than one inspection per week is required. An owner or operator of a landfill which accepts less than 10,000 tons per year of solid waste and demonstrates adequate justification for less frequent inspections may be approved by the department for a minimum of 4 inspections per year. To assure that the inspections are random, the first truckload which exceeds the accumulated total of 5,000 tons of solid waste shall be selected for inspection. Alternate methods of assuring random selection may be approved by the department.

(b) The inspection shall involve discharging the waste load and viewing its contents in an area that clearly segregates the waste from all other solid wastes and is capable of controlling any potentially hazardous waste prior to disposal of the waste.

(2) RECORDS OF INSPECTIONS. Records of the random load inspections shall include the following information:

(a) The date and time solid wastes were received.

(b) The names of the firm transporting the solid waste and the driver of the vehicle.

(c) The vehicle's license plate and the transporter's Wisconsin solid waste license number.

(d) The community or communities where the solid waste was generated.

(e) The type or types of waste such as commercial, industrial, residential or any combination.

(f) The name of the certified facility manager or certified site operator inspecting the load.

(g) All of the observations made by the inspector, including any actions taken to manage or return nonapproved waste or actions taken if extreme toxicity or hazard is discovered.

(3) TRAINING OF LANDFILL PERSONNEL TO RECOGNIZE WASTE NOT APPROVED FOR ACCEPTANCE. Landfill personnel shall be trained in accordance with ch. NR 524 to recognize waste not approved for acceptance.

(4) NOTIFICATION IF A WASTE NOT APPROVED FOR ACCEPTANCE IS DISCOVERED AT THE LANDFILL. The owner or operator of the facility shall notify the department's district or area solid waste management specialist in writing within 15 days if non-hazardous waste not approved for acceptance is discovered at the landfill. If waste not approved for acceptance is discovered and is suspected of being hazardous or containing PCBs at a concentration of 50 ppm or greater, the owner or operator of the facility shall notify the department's district or area solid waste and hazardous waste management specialists in writing within 2 days.

(5) REJECTION OF WASTE NOT APPROVED FOR ACCEPTANCE. Waste which is not approved for acceptance at the landfill shall be rejected. The waste shall be handled in accordance with all applicable regulations including but not limited to transportation, storage, treatment and disposal.

NR 506.17 RECORD KEEPING. The owner or operator of a 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 536. 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 186. NR 506.19 is created to read:

NR 506.19 LANDFILL COMPLIANCE CERTIFICATIONS AND AUDITS. (1) COMPLIANCE CERTIFICATION. No later than March 31 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 the effective date of this rule ... [revisor inserts date], 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 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) AUDITS. As specified under s. 144.434, Stats., the department may perform audits of any landfill. Following a minimum 30-day advance notification, the landfill owner or operator shall ensure that during the period of the audit, a conference room or adequate office space is provided for department personnel, and that proper technical personnel representing the owner are present to respond to department inquiries regarding the landfill. The owner or operator shall also ensure that any of the information in pars. (a) to (j) or any other information specified by the department in its audit notification letter is available in an organized fashion for the department to review. The owner or operator shall provide copies of requested information for the department to take with them following the audit. If requested by the department, the owner, operator or their representatives shall present the requested information to the department during the audit and also participate in an inspection of any aspects of the landfill which the department requests. The owner or operator shall provide the department with access to all items or areas of the landfill which are related to landfill performance or to compliance with approved plans, solid waste administrative rules or statutes.

(a) One or more full-sized plan view drawings clearly annotated to show the following:

1. The portions of the landfill which currently are receiving solid waste;
2. All portions of the landfill which have been filled, but have not yet been brought to approved final grades;
3. All portions of the landfill which have been filled to approved final grade and the extent to which the final cover system has been placed;
4. All portions of the landfill which currently are undergoing development or closure;
5. All portions of the landfill which have yet to be developed; and
6. Any areas which have been filled above approved final grades or beyond the approved limits of filling.

(b) Calculations based on the most recent topographic survey which show the design capacity volume which has been filled, the remaining design capacity volume, and the estimated remaining site life. All assumptions used in the calculation of estimated remaining site life shall be provided. If the currently estimated remaining site life is one or more years less than that assumed in the latest long-term care calculations, changes shall be evaluated and proposed to the annual long-term care inpayment required to be made by

owners using escrow accounts, trusts or deposits with the department to provide proof of financial responsibility for long-term care.

(c) Plan view drawings or sketches documenting each leachate collection line cleaning and leachate transfer line pressure testing event. Separate drawings or sketches shall be submitted for each event, with each drawing using as a base the landfill's entire leachate collection and transfer piping system. If legibility is not compromised, these drawings may be 11-inch by 18-inch pull-out drawings.

(d) For landfills which have not been required to begin a formal ch. NR 140 investigation, but which have experienced over the past 3 year reporting period: an ES exceedance; more than 2 PAL exceedances for the same parameter at the same well; or results where the average of all data for a parameter at a well exceeds a PAL, a summary of all groundwater data collected to date for the well or wells which have experienced the results presented graphically using either time versus concentration graphs or box plots.

(e) An evaluation of the performance of the leachate collection and removal system which 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 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.

(f) Graphs of leachate head conditions on the liner and trends with time shall be reported. Where lysimeters or gradient control systems are present under the liner, fluid collection quantity and quality data shall also be tabulated.

(g) Graphs and tables evaluating the performance of the gas extraction system over the previous 3 years including: the volume of gas removed and average methane concentration to be presented on a no less frequent basis than quarterly; the condition of each gas extraction wells and identification of any wells which need to be replaced or that have been replaced; a summary of the hours of operation and down time of the gas recovery plant or blower; and a summary of any exceedances of the lower explosive limit of any gasses detected in gas monitoring wells located outside the limits of waste. This information shall also be presented graphically to the extent possible.

(h) An evaluation of settlement which the landfill has undergone, and any evidence of surface water ponding, poor drainage, differential settlement, erosion or other disruption of the final cover structure.

(i) An evaluation of the integrity of the vegetation on the final covered or interim-covered areas, integrity of the final cover, summary of erosion control efforts, surface stabilization efforts and any evidence of animal intrusion.

(j) Where applicable, a summary of the occurrences of liquids in secondary containment systems for leachate drain lines, condensate drain lines, manholes, collection tanks and lift stations and any corrective measures taken or proposed in response to the presence of liquids.

SECTION 187. NR 507 is created to read:

CHAPTER NR 507

ENVIRONMENTAL MONITORING FOR LANDFILLS

NR 507.01 PURPOSE. The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in this state, to outline environmental monitoring requirements at solid waste facilities and to implement groundwater standards according to ch. NR 140 and ch. 160, Stats. This chapter is adopted under ss. 144.43 to 144.47 and 227.11, Stats.

NR 507.02 APPLICABILITY. (1) Except as otherwise provided, this chapter governs all environmental monitoring for solid waste disposal facilities as defined by s. 144.43(5), Stats., except hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to 690, and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

(2) This chapter does not apply to the design, construction or operation of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes approved under s. 144.04, Stats., or permitted under ch. 147, Stats., nor to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 144.04, Stats., or permitted under ch. 147, Stats., except for facilities used for the disposal of solid waste.

(3) This chapter applies to the owners and operators of solid waste disposal facilities regulated under chs. NR 500 to 536.

NR 507.03 DEFINITIONS. The terms used in this chapter are defined in s. NR 500.03.

NR 507.04 GENERAL REQUIREMENTS FOR MONITORING DEVICES AND GEOLOGIC SAMPLING. The department may require an owner or operator of a solid waste disposal facility to install, sample and document environmental monitoring devices in accordance with this chapter. All monitoring devices shall be designed, installed, maintained and operated in accordance with the requirements of ss. NR 507.05 to 507.26, unless an alternate method is approved in writing by the department. All monitoring devices shall be constructed to minimize the potential for contaminants to enter the groundwater or to move from one major soil unit or rock formation to another. All monitoring devices shall be designed, located, installed and maintained so as to obtain reliable and representative information.

(1) LOCATION. The owner or operator shall submit, in writing, to the department for approval, the locations of all monitoring devices prior to

installation, except for wells installed prior to a feasibility decision. The location and construction of any monitoring device installed prior to the feasibility decision may be submitted to the department for review and concurrence prior to installation.

(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.

(3) PROTECTION. All monitoring and sampling devices shall be sealed and locked to prevent contaminants from entering the 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.

(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.

(5) ABANDONMENT. For monitoring devices to be abandoned for any reasons, an owner or operator shall contact the department. If monitoring devices are being replaced they shall be properly abandoned in accordance with ss. NR 141.25 and 507.13.

(6) DOCUMENTATION. All activities required under ss. NR 507.05 to 507.13 shall be documented in accordance with ss. NR 141.23 and 507.14.

NR 507.05 SOIL AND ROCK SAMPLING. All soil and rock samples collected from borings shall be collected and tested in accordance with this section unless otherwise approved in writing by the department.

(1) SOIL SAMPLE COLLECTION. Soil samples shall be collected in accordance with all of the following:

(a) Where conditions permit, soil samples shall be collected using undisturbed soil sampling techniques. Samples may not be composited for testing purposes.

(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 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.

(d) At least one soil sample shall be collected at the depth of the well screen of any subsequently placed monitoring well. The soil sample collected at the depth of the well screen shall be analyzed for grain size distribution using mechanical and hydrometer methods and Atterberg limits, as appropriate for the particular soil type.

(e) All soil samples shall be retained until the department approves the report that included documentation of the soil sampling.

(2) BEDROCK SAMPLE COLLECTION. If a boring is extended 5 feet or more into bedrock, continuous core samples of the bedrock shall be taken and the rock properties including fracture frequency, rock quality designation, and percent recovery shall be determined. All bedrock core samples shall be retained until the department approves the report that included documentation of the boring. After the approval, the owner or operator shall notify the WGNHS that all bedrock cores and their corresponding boring logs are available for study and possible retention. If the owner or operator has not been contacted by the WGNHS within 45 days after contacting the WGNHS, the owner or operator may discard the bedrock cores.

Note: Wisconsin geological and natural history survey, 3817 mineral point road, Madison, Wisconsin 53705. Phone (608)263-7387.

(3) BORING LOG. A boring log shall be submitted for each boring in accordance with s. NR 507.14. For replacement wells, soil and bedrock samples shall be collected in accordance with s. NR 507.05(1) and (2) unless the department approves a preexisting boring log for a boring within 10 feet of the replacement well. The owner or operator may request an exemption to the 10 foot distance.

NR 507.06 GROUNDWATER MONITORING WELL DESIGN AND INSTALLATION. All groundwater sampling devices shall be designed, located, installed and maintained so as to obtain reliable and representative information regarding aquifer characteristics, groundwater flow directions and chemical and physical characteristics of groundwater. All groundwater monitoring wells shall be designed and installed in accordance with ch. NR 141 and the requirements of this section unless an alternate method is approved in writing by the department.

(1) DRILLING METHOD. Drilling fluids may not be used for installing monitoring wells unless no reasonable alternative exists. If drilling fluids are used, the driller shall document the type of fluids used and the chemical constituents of the mixture. If water is used, the source of the water shall be identified and the water shall be analyzed for all detection groundwater monitoring parameters listed in Appendix I, Table 1, under municipal solid waste. The drilling method shall meet all of the following:

(a) Bedrock drilling shall be performed in accordance with s. NR 507.05 and ch. NR 141.

(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 drilling 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.

(c) If the drilling method does not allow the required soil or rock sampling to be performed, a separate boring shall be drilled adjacent to the monitoring well to provide the necessary information.

(2) BOREHOLE ABANDONMENT. If any borehole is deeper than the well to be placed in it, the portions of the borehole below the well screen shall be properly sealed in accordance with ss. NR 507.08 and 141.25(2)(d).

(3) IN-FIELD HYDRAULIC CONDUCTIVITY TEST. An in-field test shall be conducted on each well to determine the in-situ hydraulic conductivity. The test shall be of long enough duration and include sufficient data to provide a representative estimate of the actual hydraulic conductivity.

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.

NR 507.08 BORING AND WELL ABANDONMENT. All monitoring wells and boreholes shall be abandoned in accordance with s. NR 141.25 and this section.

(1) TIMELINE. All boreholes not instrumented with a well shall be abandoned immediately after completion of drilling and soil sampling.

(2) ABANDONMENT OF WATER SUPPLY WELLS. Water supply wells which are required to be abandoned shall be abandoned and documented in accordance with s. NR 812.26.

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. 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).

NR 507.10 COLLECTION BASIN LYSIMETER DESIGN AND INSTALLATION. All collection basin lysimeters required under s. NR 504.06(5)(u) shall be located, designed and installed so as to obtain reliable and representative information regarding movement of liquid through the landfill liner. All collection basin lysimeters shall be documented in accordance with s. NR 507.14(1) and (5)(a).

NR 507.11 GAS MONITORING WELL DESIGN AND INSTALLATION. All gas monitoring wells shall be designed, installed and documented in accordance with ss. NR 507.04, 507.05, 507.06(1) and (2) and 507.14 and the requirements of this section unless the department approves alternate methods in writing. All gas monitoring wells shall be designed, located, installed and maintained so as to

obtain reliable and representative information regarding soil conditions and gas concentrations.

(1) TIMING OF INSTALLATION. Where gas monitoring is required, gas monitoring wells shall be installed at the same time that adjacent areas of the landfill liner are constructed.

(2) DESIGN. All gas monitoring wells shall be constructed with a shut-off valve to prevent the escape of gas from the sampling device and minimize the amount of inflow of air from the atmosphere.

(3) LOCATION. All gas monitoring wells shall meet both of the following:

(a) Wells shall extend to the maximum depth of waste or to the low seasonal groundwater level whichever is encountered first. The screened length shall extend from 5 feet below ground surface to the bottom of the well.

(b) Wells shall be located within 150 feet of the edge of waste unless otherwise approved by the department.

NR 507.12 OTHER MONITORING DEVICE DESIGN AND INSTALLATION. The department may require other monitoring devices based on an evaluation of the potential for environmental impacts and the risk those impacts pose to human health and the environment.

NR 507.13 INSPECTIONS AND REPLACEMENT DEVICES. The facility owner or operator shall inspect at least annually all monitoring devices installed for field investigations conducted under this chapter. Sampling personnel shall inspect all monitoring devices each time the device is sampled or a water level elevation is measured. If for any reason a monitoring device is damaged, provides a conduit to the subsurface or otherwise fails to function properly, the facility owner or operator shall notify the department in writing within 10 days after discovery. The device shall be repaired if possible. If the device cannot be repaired, it shall be properly abandoned and replaced within 60 days unless otherwise approved in writing by the department. Replacement and abandonment of groundwater monitoring wells shall be in accordance with ch. NR 141 and this chapter. If the device is replaced, the replacement device shall be given the same number as the device it replaced followed by the letter "R" to indicate it is a replacement, unless otherwise approved in writing by the department. An additional "R" shall be added each time the device is replaced.

NR 507.14 DOCUMENTATION OF MONITORING DEVICES AND GEOLOGIC SAMPLING. All well construction and abandonment, well development, and boring advancement and abandonment activities shall be documented and reported to the department in accordance with s. NR 141.23 and this section. These activities shall be documented in all major plan submittals including initial site reports, feasibility reports, plans of operation, construction documentation or environmental contamination assessment reports. If no plan is being prepared at the time of these activities, documentation of the activities shall be submitted to the department within 60 days after the activities.

(1) WELL LOCATION. Documentation of all well locations shall be done in accordance with s. NR 141.065.

(2) SOIL AND BEDROCK DESCRIPTION. Documentation of soils and bedrock shall include all of the following:

(a) A description of each major soil sample unit including its structure, mottling, voids, layering, lenses and geologic origin and visual classification according to the unified soil classification system.

(b) A description of any continuous bedrock core samples including percent recovery, RQD and fracture frequency.

(3) BORING LOGS. Boring logs shall include all of the following:

(a) Elevations of land surface and bottom of boring, corrected to national geodetic survey datum.

(b) If the boring is converted to a well, the water level at the time of drilling, date of water level measurement and a well construction diagram on the boring log.

(4) BORING AND WELL ABANDONMENT DOCUMENTATION. Documentation of the abandonment of wells and borings shall include all of the following:

(a) If the well is a public or private water supply well, any forms required under ss. NR 812.22 and 812.26, such as well abandonment report form 3300-5.

(b) Updated forms previously submitted to the department such as the groundwater monitoring well information form, to reflect the current condition of the monitoring system.

(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 Appendix V, and be completed as instructed. All the information on the forms and instructions in Appendix V shall be provided on the appropriate form included in 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 4400-89, for use whenever monitoring points are added or removed from the monitoring system, including water supply wells. Within 6 months following the effective date of this rule ... [revisor inserts date], 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.

(b) Groundwater monitoring inventory form 3300-67 for all water supply wells.

(c) Monitoring well construction form 4400-113A.

(d) Monitoring well development form 4400-113B.

(e) Well/drillhole/borehole abandonment form 3300-5B.

(f) Soil boring log information form 4400-122.

(6) MISCELLANEOUS. The owner or operator shall document raw data and calculated results of in-situ hydraulic conductivity tests, water level measurements and dates, computations of well yield, if determined and any changes in well construction, casing elevation and other features subsequent to drilling.

Note: Copies of these forms may be obtained from the department of natural resources, bureau of solid and hazardous waste management, 101 south webster street, natural resources building, p.o. box 7921, Madison, Wisconsin 53707-7921.

NR 507.15 GENERAL REQUIREMENTS FOR ENVIRONMENTAL MONITORING. (1) ALL FACILITIES. The department may require the owner or operator of any landfill, or any person who permits the use of property for that purpose, to conduct environmental monitoring in accordance with this chapter and with plans approved by the department. Environmental monitoring includes but is not limited to monitoring of groundwater, the unsaturated zone, leachate, lysimeter fluid, gas, gas condensate, surface water, public or private water supplies, air or other physical features. Monitoring procedures and results shall be documented and submitted to the department in accordance with ss. NR 507.14 and 507.26.

(2) FACILITIES IN OPERATION ON OR AFTER OCTOBER 9, 1993. The owner or operator of a landfill which accepted municipal solid waste on or after October 9, 1993, except facilities which received less than 100 tons per day on an annual basis and which ceased accepting solid waste prior to April 9, 1994, shall perform all of the following:

(a) Propose in the feasibility report for any new facility or expansion of an existing facility, a minimum of 4 groundwater monitoring wells to serve as Subtitle D wells. The department shall review the proposal and approve the proposed wells or choose alternative wells.

(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:

1. For facilities licensed to receive greater than 500,000 cubic yards, the owner or operator shall submit the proposal for implementation within 60 days after the effective date of this rule ... [revisor inserts date].
2. For facilities licensed to receive less than 500,000 cubic yards, the owner or operator shall submit the proposal for implementation by October 9, 1996.

(c) Implement a detection monitoring program in accordance with plans approved by the department and including assessment monitoring if necessary.

(d) Propose to the department a quarterly gas monitoring program in accordance with s. NR 507.22 for implementation within 60 days after the effective date of this rule ... [revisor inserts date] at existing facilities or in a feasibility report.

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

NR 507.16 SAMPLING PLAN. The owner or operator shall submit a sampling plan for all monitoring devices at the facility for approval as part of the feasibility report. The sampling plan shall be implemented as approved in writing by the department. The sampling plan shall follow procedures and methodologies specified by the department and shall comply with the requirements in s. NR 140.16.

Note: The department intends to periodically issue technical guidance relating to groundwater sampling procedures and methodologies. The guidelines are available from the department of natural resources, bureau of solid and hazardous waste management, 101 south webster street, natural resources building, p.o. box 7921, Madison, Wisconsin 53707-7921.

(1) CONTENTS OF SAMPLING PLAN. At a minimum, the following information shall be included in the sampling plan:

(a) An 8½ by 11 inch site map showing locations of all sample points and devices. An 11 by 17 inch site map may be included if clarity is compromised using the 8½ by 11 inch size. Different symbols shall be used to differentiate types of monitoring devices such as groundwater monitoring wells, collection lysimeters and gas monitoring wells. Each sample point shall be labeled.

(b) A sample schedule, including all of the following:

1. The months that each sample point is to be sampled.
2. The sampling period, as designated by the department.
3. The list of parameters that are to be analyzed for in the sample from each monitoring device during each month that sampling occurs.

(c) Procedures for field measurements, including all of the following:

1. The order in which wells should be sampled if the groundwater has been impacted by regulated or other activities.
2. The procedures and type of equipment used to measure water level elevations.
3. The procedures and type of equipment used to measure temperature, pH, conductivity and procedures to determine turbidity, odor and color.

(d) Procedures for purging wells, including all of the following:

1. Procedures to purge wells prior to collecting samples.
2. Procedures for determining the volume of water to be removed from each well.
3. The type of equipment used to purge wells.
4. The rate of flow while purging, when applicable.
5. Procedures to clean purging equipment between wells.
6. The amount of time required between purging and sampling.

(e) Procedures for obtaining samples from wells, including all of the following:

1. Procedures and type of equipment used to retrieve samples.
2. Volume of sample required for analysis.
3. Procedures and type of equipment to filter samples, including when to filter and when not to filter samples, if applicable.
4. The rate of flow when sampling, when applicable.

5. Procedures and type of equipment to physically and chemically preserve samples.
6. Procedures to clean sampling equipment following sampling of one well and prior to sampling the next well.

(f) Procedures for establishing field quality assurance and quality control, including all of the following:

1. Field blank, duplicate sample and trip blank procedures.
2. The frequency at which the field blanks, duplicate samples and trip blanks will be collected or processed.

(g) Special procedures to sample water supply wells.

(h) Special procedures to sample leachate headwells and other devices.

(i) Chain of custody procedures, including persons responsible for sampling and methods for transporting samples to the laboratory.

(2) AVAILABILITY OF SAMPLING PLAN. A copy of the approved sampling plan shall be kept at the facility or at the office of the facility owner and a copy shall be provided to the sampling personnel for use during sampling. The approved sampling plan shall be followed unless the department is notified of and concurs with modifications. The owner or operator shall submit documentation of the approved changes to the department within 90 days. The owner or operator shall retain field records of all monitoring activities throughout the long-term care period.

NR 507.17 SAMPLING, ANALYSIS, AND LABORATORY REQUIREMENTS. This section applies to all sampling required under chs. NR 507 and 508. The owner or operator shall obtain and analyze samples according to the approved sampling plan and the following requirements:

(1) FIELD MEASUREMENTS. The owner or operator shall observe and record physical measurements in the field at the time of sampling each groundwater monitoring well or leachate well, including all of the following:

(a) Water level elevation. Water level elevations shall be measured prior to purging the well for sampling and recorded to the nearest 0.01 foot. The elevation shall be corrected to national geodetic survey datum. The measuring point shall be the top of the well casing and shall be identified on the well itself if the top of the casing is not level.

(b) Physical appearance. The physical appearance of the sample, including color, odor and turbidity, shall be recorded at the time of sampling.

(c) Chemical measurements. Field specific conductance at 25°C and field pH shall be measured immediately following purging of each well. If the well can be purged dry, these measurements shall be taken when the sample is collected. Field specific conductance readings shall be corrected to 25°C if the meter used does not automatically correct for temperature.

(2) SAMPLE COLLECTION. Samples shall be collected in accordance with the approved sampling plan under s. NR 507.16.

(3) ANALYTICAL PARAMETERS. The analytical parameters which shall be used for environmental monitoring under this chapter are listed in Appendices I through IV. The department may require analysis of additional parameters depending on the characteristics of the waste, the raw process materials used, or the provisions of ch. NR 140.

(4) ANALYTICAL METHODS. Groundwater, lysimeter and leachate samples shall be handled and analyzed in accordance with the requirements of the methods listed in Appendices II, III and IV corresponding to the listed analytical parameters. Water supply samples shall be handled in accordance with s. NR 507.20. The department may approve alternative analytical methods under s. NR 149.12.

(5) LABORATORY REQUIREMENTS. All chemical analyses shall be conducted by a laboratory certified under s. 144.95, Stats., and ch. NR 149 for that test category. The limit of detection and the limit of quantitation shall be determined in accordance with s. NR 149.11(5). The analytical laboratory shall meet the requirements of the analytical method and ch. NR 149. Section NR 140.16(4) applies to analytical results that do not meet the requirements of this paragraph.

Note: Section NR 149.14 requires each laboratory to maintain a quality control program and to document the quality control data. The same section allows the department to request a copy of quality control data to be submitted for its review.

(6) DATA REPORTING REQUIREMENTS. The owner or operator shall report laboratory quality control indicators in accordance with s. NR 507.26(3)(b).

(7) OTHER/TEST REQUIREMENTS. The following tests shall be performed using department guidance, or if no guidance is available, current industry standards or procedures:

(a) Physical tests of soil.

(b) Physical tests of waste.

(c) Chemical tests of waste.

(d) Air quality tests.

(e) Gas tests.

(f) Field pH tests.

(g) Field conductivity tests.

(h) Product quality testing.

(i) Nutrient testing of soils and waste.

(j) Turbidity tests.

(k) Water elevation.

(l) Temperature.

(m) Leachate liner compatibility testing.

Note: ASTM publishes methods for these tests. Copies of astm test methods are available from: astm, 1916 race street, Philadelphia, Pennsylvania, 19103.

NR 507.18 BASELINE GROUNDWATER QUALITY SAMPLING. An applicant for a proposed facility for all its monitoring wells and the owner or operator of an existing facility for its designated Subtitle D wells shall establish baseline groundwater quality in accordance with subs. (1) to (3). Owners or operators shall establish baseline groundwater quality at all new or replacement groundwater monitoring wells in accordance with sub. (4). The department may require the owners or operators of other facilities at which monitoring is required to establish baseline groundwater quality in accordance with sub. (4). Collection, handling and analysis of groundwater monitoring samples specified in subs. (1) to (4) shall be performed in accordance with ss. NR 507.16 and 507.17.

(1) BASELINE GROUNDWATER QUALITY FOR DETECTION MONITORING PARAMETERS EXCEPT VOCs. (a) Baseline groundwater quality shall be established at all wells which 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. Appendix I, Tables 1 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.

(b) The owner or operator shall obtain and analyze a minimum of 8 samples to determine baseline groundwater quality for the parameters required under this subsection. For a proposed facility a minimum of 4 samples, with at least 30 days between sampling rounds, shall be taken and analyzed and the results shall be submitted with the feasibility report. The remaining samples shall be taken with at least 30 days between sampling rounds and the results shall be submitted with the plan of operation unless otherwise approved in writing by the department.

(2) BASELINE GROUNDWATER QUALITY FOR PUBLIC HEALTH AND WELFARE PARAMETERS NOT INCLUDED AS DETECTION MONITORING PARAMETERS IN SUB. (1). (a) Unless otherwise specified by the department, baseline groundwater quality shall be established at all wells outside the proposed limits of filling which 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 Appendix I, Table 3.

(b) For a proposed facility, a minimum of 4 samples, with at least 30 days between sampling rounds, shall be collected and analyzed and the results shall be submitted with the feasibility report. Four additional samples, with at least 30 days between sampling rounds, shall be collected and analyzed for any parameter listed in Appendix I, Table 3 from any well which meets one or more of the following criteria:

1. One of the initial 4 sample values attains or exceeds the ES for that parameter.
2. Two or more of the initial 4 sample values attains or exceeds the PAL for that parameter.
3. The average of the initial 4 sample values attains or exceeds the PAL for that parameter.

(c) If additional samples are required under par. (b), the results of the 4 additional samples shall be submitted in the plan of operation and in accordance with s. NR 507.26(3).

(3) BASELINE GROUNDWATER QUALITY FOR VOCs. (a) Baseline groundwater quality shall be established for all VOCs listed in Appendix III, at all monitoring wells outside the proposed limits of filling. Landfills designed to accept primarily coal ash are exempt from baseline groundwater quality monitoring for VOCs.

(b) Samples shall be collected for VOC analysis from each well at the same time as the first and second sampling rounds for the other detection monitoring parameters. If any well has VOC parameters in concentrations above their limit of detection in either of the first 2 sampling rounds, that well shall be sampled for VOCs 2 additional times for a total of 4 sampling rounds. The results shall be submitted with the feasibility report and in accordance with s. NR 507.26(3).

(4) BASELINE GROUNDWATER QUALITY AT NEW OR REPLACEMENT MONITORING WELLS. All new or replacement groundwater monitoring wells installed after the effective date of this rule ... [revisor inserts date] shall be sampled on a semi-annual basis beginning with the sampling event following installation for the parameters specified in 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 is established in the same environment and proximity as the well being replaced.

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. 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.

(1) NUMBER OF REQUIRED MONITORING POINTS. The number of required monitoring points and the proposed detection monitoring program shall be as approved in writing by the department based on the facility size, waste types, facility design and hydrogeologic and geologic setting of the facility. The detection monitoring program shall be adequate to determine upgradient and downgradient water quality, horizontal and vertical gradients and to detect any impacts from the facility on groundwater quality.

(2) SAMPLING FREQUENCY. The minimum sampling frequency for detection groundwater monitoring shall be appropriate for the particular waste types accepted at the landfill and are listed in Appendix I, Tables 1 and 2. The department may approve other sampling frequencies in writing.

(3) SAMPLING PARAMETERS. The sampling parameters required for detection groundwater monitoring shall be appropriate for the particular waste types accepted at the landfill. Appendix I, Tables 1 and 2 indicate which sampling parameters are appropriate for each waste type. Appendix III lists the volatile

organic compounds to be sampled when a VOC scan is required. The department may approve other sampling parameters in writing. If 10% or more of a municipal solid waste landfill's total design capacity consists of a waste type listed in Appendix I, Table 2, the detection monitoring program shall include the additional parameters listed in Appendix I, Table 2 for that waste type. The owner or operator may demonstrate that a parameter is not present in the waste or leachate. The department shall review such a demonstration and take the appropriate action.

(4) PREVENTIVE ACTION LIMITS. Preventive action limits for inorganic detection monitoring parameters shall be calculated in accordance with s. NR 507.27.

NR 507.20 WATER SUPPLY WELL MONITORING. The department may require the owner or operator to sample water supply wells as part of a detection groundwater monitoring program or to determine the extent of groundwater contamination.

(1) WATER SUPPLY WELL SAMPLES. (a) Water supply well samples shall be collected, handled and analyzed in accordance with the procedures specified in ch. NR 809.

(b) Water supply well samples shall be analyzed in accordance with plans approved by the department.

(c) Water supply well samples may not be filtered.

(2) NOTIFICATION OF REFUSAL TO GRANT ACCESS. If a property owner refuses access to a water supply well, the owner or operator shall notify the department in accordance with s. NR 507.26(2)(b).

(3) PRIVATE WATER SUPPLY WELL DOCUMENTATION. The owner or operator of a solid waste disposal facility which is required by the department to sample private wells shall do each of the following during the first round of sampling after the effective date of this rule ... [revisor inserts date]:

(a) Attach a label supplied by the department to each private well.

(b) Submit to the department along with the sampling results all the information on the groundwater monitoring inventory form 3300-67 in Appendix V for each well.

Note: Copies of this form may be obtained from the department of natural resources, bureau of water supply, 101 south webster street, natural resources building, p.o. box 7921, Madison, Wisconsin 53707.

NR 507.21 LYSIMETER FLUID AND LEACHATE MONITORING. The owner or operator of a solid waste disposal facility shall sample lysimeter fluid and leachate in accordance with this section.

(1) SAMPLING PARAMETERS. Owners or operators of landfills shall sample lysimeter fluid and leachate beginning with the first sampling period following acceptance of waste in accordance with Appendix I, Tables 4 and 5 or as otherwise approved by the department in writing. If 10% or more of a municipal solid waste landfill's total design capacity consists of municipal solid waste combustor residue, paper mill sludge, fly or bottom ash, or foundry sand, the lysimeter and leachate monitoring shall include the additional parameters

listed in Appendix I, Table 4 or 5 for those waste types. The owners or operators shall maintain records of all leachate pumped and at a minimum shall record the information annually. The owners or operators shall report the monthly leachate volumes and lysimeter fluid volumes to the department semi-annually in accordance with s. NR 507.26(3).

(2) ADDITIONAL LEACHATE SAMPLING. Owners or operators of municipal solid waste facilities required to designate subtitle D wells in accordance with s. NR 507.15(2)(a) may monitor leachate annually for parameters listed in 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 days after the end of the sampling period, submit the results to the department.

NR 507.22 GAS MONITORING. The department may require the owner or operator to install gas monitoring devices, to prepare and submit gas sampling and analysis programs, to monitor for gas migration, and to determine the effectiveness of any gas extraction systems. If explosive gases are detected in any gas monitoring well located outside of the limits of filling, the department may require any or all of the following: more frequent monitoring, monitoring for pressure or other parameters, and the installation of additional gas monitoring wells which may include nests of wells screened over shorter vertical intervals. Where monitoring is required, the owner or operator shall comply with all of the following:

(1) SAMPLING PARAMETERS. The owner or operator shall sample gas monitoring wells quarterly for percent methane and percent oxygen. 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.

(2) SAMPLING. Sampling shall be performed with properly calibrated instruments. When a gas monitoring well is being sampled, the gas monitoring instrument shall be attached to the well prior to opening the valve on the gas monitoring well.

(3) REPORTING. Unless otherwise approved by the department, the owner or operator shall report gas monitoring sampling results in accordance with s. NR 507.26(3).

(4) NOTIFICATION AND REMEDIATION. The owner or operator shall immediately notify the department and take all necessary steps to protect public health and welfare if a stabilized reading exceeds the lower explosive limit of any explosive gas generated by the waste fill in the soils outside of the limits of filling or air within 200 feet of the landfill property boundary or beyond the landfill property boundary, or 25% of the lower explosive limit in any facility structure, excluding gas control or recovery system components. Within 30 days of determining that the applicable gas level was exceeded, the owner or operator shall submit a remediation plan to the department describing the degree and extent of the problem and the proposed remedy. Within 60 days of determining that the applicable gas level was exceeded, the owner or operator shall implement the remediation plan. As additional requirements for owners or operators of landfills meeting the requirements of s. NR 507.15(2), within 7 days of determining that the applicable gas level was exceeded, the operating

record shall be updated to indicate the level detected and the steps taken to protect public health. The proposed remediation plan and notification of its implementation shall also be placed in the operating record. The department may upon written request, approve alternate schedules for submittal and implementation of the remediation plan.

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, the owner or operator shall report surface water monitoring results in accordance with s. NR 507.26(3).

(1) SAMPLE COLLECTION. All sampling shall be done in accordance with plans approved by the department. The owner or operator shall record the amount of precipitation in the 24 hours prior to sampling and submit the information with the sample results.

(2) IDENTIFICATION. All surface water sampling locations shall be surveyed and permanently and clearly marked.

(3) LOCATION. All surface water monitoring points shall be documented in accordance with s. NR 507.14(1) and (5)(a). All elevations shall be corrected to the national geodetic survey datum and recorded to the nearest 0.01 foot.

NR 507.24 AIR MONITORING. If the facility has the potential to cause air pollution as defined in s. 144.01(1), Stats., the department may require the owner or operator to monitor air quality for particulates, toxics or other constituents in the ambient air from point sources or in buildings at or associated with the facility. The department shall specify sampling times and locations and all sampling shall be implemented in accordance with plans approved by the department.

NR 507.25 OTHER MONITORING. If the facility has the potential to cause environmental pollution as defined in s. 144.01(3), Stats., the department may require the owner or operator to monitor any or all of the following: landfill settlement; berm, sideslope and final cover stability; vegetative growth; drainage control structures; gradient control systems; and any other aspects of facility operation. All required monitoring shall be done in accordance with plans approved by the department. The department may require geophysical investigations to complement groundwater monitoring efforts.

NR 507.26 DOCUMENTATION OF ENVIRONMENTAL MONITORING. The owner or operator of a solid waste disposal facility shall document all sampling and analysis activities in accordance with this section.

(1) FIELD RECORDS. Field records of all monitoring activities shall be prepared in sufficient detail to document whether the sampling plan has been followed. The facility owner or operator shall retain all field records in an operating record at the facility or in an alternative location approved by the department until the end of the long-term care period for the facility. Field records shall be available for department inspection on request.

(2) WATER SUPPLY WELL SAMPLING RESULTS. (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 ch. 160, Stats. The results shall be accompanied by 2 copies of a cover letter which highlights values that attain or exceed enforcement standards in s. NR 140.10 Table 1.

(b) If the owner or operator is unable to sample a water supply well because the property owner refuses access, the responsible parties shall notify the department within 30 days after the refusal, and shall document in writing within 60 days, the efforts undertaken to gain access when requested by the department.

(3) ALL OTHER ENVIRONMENTAL MONITORING RESULTS. The owner or operator shall submit sampling results and water elevation data to the department within 60 days of the end of the sampling period. An explanation of any deviation from the approved sampling plan or analytical procedures shall be submitted at the same time.

(a) Data submittal format. 1. Except as provided in subd. 2., the owner or operator shall submit results of all environmental monitoring in an electronic format specified by the department.

Note: The specific data formats for electronic monitoring result submittals may be obtained from the department of natural resources, bureau of solid and hazardous waste management, sw/3, p.o. box 7921, Madison, Wisconsin 53707.

2. The owner or operator of a solid waste disposal facility with fewer than 10 required sampling points may request that sampling results and groundwater elevation data be accepted on approved department forms. The department may approve replicate forms generated by the facility owner or operator for use in submitting sampling results.

(b) Sampling results. The owner or operator shall submit all sampling results above the limit of detection. In addition, the owner or operator shall submit all of the following information for each sampling round:

1. The limit of detection and the limit of quantitation for each parameter. 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 149.11(5).
2. A result qualifier for each detected parameter with a reported value between the limit of detection and the limit of quantitation.
3. The analytical method used with each parameter for each sample.
4. Quality control flags to indicate all of the following:
a. All parameters that are also detected in method blanks, trip blanks or field blanks or both in concentrations above the limit of detection;
b. All parameters from samples which fail to meet preservation and holding times specified in EPA SW-846;

Note: Copies of EPA SW-846 are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes. Copies may be obtained from the national technical information service, 5285 port royal road, Springfield, Virginia 22161. Phone (703) 487-4600.

c. All parameters which fail to meet quality control specifications in s. NR 149.14.
5. Laboratory certification identification number as specified in ch. NR 149.

(c) Notification. The owner or operator shall notify the department of values which have attained or exceeded groundwater standards in accordance with s. NR 507.30.

NR 507.27 CALCULATION OF GROUNDWATER STANDARDS. The owner or operator shall propose PALs for inorganic monitoring parameters and ACLs and submit PAL or ACL calculations to the department for approval. Calculations of PALs for inorganic monitoring parameters and ACLs shall be based on historical data for each well unless the department determines that data from a well with similar groundwater quality may be used.

(1) PREVENTIVE ACTION LIMITS. The owner or operator of an existing solid waste disposal facility shall calculate PALs for inorganic detection monitoring parameters at the direction of the department. Applicants for a proposed solid waste disposal facility shall calculate PALs for inorganic detection monitoring parameters prior to submitting the plan of operation. Detection monitoring parameters are listed in Appendix I Tables 1 and 2. The owner or operator shall calculate PALs for the inorganic detection parameters required at each well in accordance with the methods specified in s. NR 140.20. PALs are not required for pH or temperature. PALs may not be calculated for any parameter which has an ES established in ch. NR 140. 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 background water quality.

(2) ALTERNATIVE CONCENTRATION LIMITS. Applicants for proposed solid waste disposal facilities and the owner or operator of an existing solid waste disposal facility may request an exemption and calculate ACLs for any inorganic public health or welfare parameter which has established standards listed in ch. NR 140, Tables 1 and 2 in accordance with s. NR 507.29.

Note: Guidance for calculations is available from the department of natural resources, solid waste management section of the bureau of solid and hazardous waste, 101 south webster street, p.o. box 7921, Madison, Wisconsin 53707-7921.

NR 507.28 EVALUATION OF GROUNDWATER STANDARDS EXCEEDANCES. The owner or operator shall determine whether a groundwater standard has been attained or exceeded and whether a PAL or ES applies in accordance with this section.

(1) DETERMINATION OF GROUNDWATER STANDARD EXCEEDANCE. The owner or operator shall determine whether a reported value has attained or exceeded a PAL or ES in accordance with s. NR 140.14.

(2) THE POINT OF STANDARDS APPLICATION. The point of standards application to determine if a PAL or ES has been attained or exceeded is specified in either s. NR 140.22(2) or (3). The design management zone and waste boundary are defined in s. NR 140.22(3). The department may consider an expansion or reduction of the design management zone in accordance with s. NR 140.22(3)(b) to (d). For purposes of evaluating compliance, a groundwater monitoring well located at the property line is a point of standards application for an ES.

(3) DEMONSTRATION OF A FALSE GROUNDWATER STANDARD EXCEEDANCE. The owner or operator may demonstrate, by resampling or other means, that a source other than the solid waste disposal facility caused the contamination or that the sample result attaining or exceeding a groundwater standard is due to an error. The owner or operator shall notify the department of the intent to either begin assessment monitoring or determine that a false exceedance has occurred. The

owner or operator shall submit the statement of intent with the notification required in s. NR 507.30(1). The owner or operator shall submit the written demonstration of false exceedance with the results of the next routine monitoring.

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. 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.

(1) EXEMPTION SUBMITTAL. The exemption request shall include all of the following:

(a) A list of the specific wells and parameters for which an exemption is being requested.

(b) Proposed ACLs and calculations in accordance with s. NR 507.27.

(c) A discussion of how the criteria listed in s. NR 140.28(2), (3) or (4) are met.

(2) ACLS. The department may approve ACLs in its response to the exemption request.

NR 507.30 NOTIFICATION AND RESPONSE WHEN VALUES ATTAIN OR EXCEED A STANDARD. The owner or operator of a solid waste facility shall notify the department in writing and respond as follows when a groundwater standard at the point of standards application or an explosive gas level has been attained or exceeded at the following devices:

(1) ALL GROUNDWATER MONITORING WELLS. (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 it 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 days from the end of the sampling period.

(b) When a groundwater standard has been attained or exceeded, the owner or operator shall respond in accordance with ch. NR 508.

(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. NR 507.26(2) and 507.30(1).

(3) GAS MONITORING WELLS. When a stabilized gas reading exceeds the lower explosive limit at locations specified in s. NR 507.22(4), the owner or operator shall immediately notify the department and respond in accordance with s. NR 507.22(4).

APPENDIX I
BASELINE AND DETECTION MONITORING REQUIREMENTS

Table 1

DETECTION GROUNDWATER MONITORING FOR LANDFILLS ACCEPTING MUNICIPAL SOLID WASTE

Waste Type	Detection Parameters[1]	Frequency for All Wells	Frequency for Subtitle D Wells
Municipal solid waste	Alkalinity Chloride COD Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness	Semi-annual	Semi-annual
	VOC scan	Annual	Semi-annual
Municipal solid waste combustor residue	Alkalinity Boron Cadmium Chloride COD Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness Lead Selenium Sulfate	Semi-annual	Semi-annual

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

Note: Refer to Appendix III for a list of VOCs, parameter numbers, CAS numbers, synonyms and analytical methods required to run VOC analyses.

Note: Refer to Appendix IV for a list of metals and indicator parameters, the parameter numbers and the analytical methods required to run the analyses.

Table 2

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

Waste Type	Detection Parameters	Frequency for All Wells
Paper mill sludge	Ammonia nitrogen Alkalinity Chloride COD Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness Nitrate + Nitrite as N Sulfate	Semi-annual
Fly or bottom ash	Alkalinity Boron COD Field conductivity (at 25°C) Field pH Field temperature Groundwater elevation Hardness Sulfate	Semi-annual
Foundry waste	Alkalinity COD Field conductivity (at 25°C) Field pH Field temperature Fluoride Groundwater elevation Hardness Sodium	Semi-annual
Demolition Waste	Demolition monitoring requirements are listed in NR 503	
Other solid waste	As specified in writing by the department	

Note: Refer to Appendix IV for a list of metals and indicator parameters, the parameter numbers and the analytical methods required to run the analyses.

Table 3

BASELINE GROUNDWATER MONITORING
PUBLIC HEALTH AND WELFARE PARAMETERS
NOT INCLUDED AS DETECTION MONITORING PARAMETERS

PUBLIC WELFARE STANDARDS	PUBLIC HEALTH STANDARDS	
Copper Manganese Sulfate Zinc	Arsenic Barium Cadmium Chromium Fluoride Lead Mercury Nitrate + Nitrite (as N) Selenium Silver	Antimony* Beryllium* Cobalt* Nickel* Thallium* Vanadium*
	*Only required for background at Subtitle D wells	

Note: Refer to Appendix IV for parameter numbers and required analytical methods.

Table 4

DETECTION LEACHATE MONITORING FOR ALL LANDFILLS[1]

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.			
Semi-Annual Monitoring Parameters			
BOD_5 Field Conductivity (at 25°C) Field pH Alkalinity Cadmium Chloride COD Hardness Iron Lead Manganese Mercury Ammonia nitrogen Total Kjeldahl nitrogen Sodium Sulfate Total suspended solids VOC scan Other parameters specified by waste type in this table if accepted at the landfill	BOD_5 Field Conductivity (at 25°C) Field pH Alkalinity Cadmium Chloride COD Hardness Iron Lead Manganese Mercury Ammonia nitrogen Total Kjeldahl nitrogen Sodium Sulfate Total suspended solids VOC scan	BOD_5 Field Conductivity (at 25°C) Field pH Alkalinity Boron Cadmium Chloride COD Hardness Iron Lead Manganese Mercury Selenium Sulfate Total suspended solids	BOD_5 Field Conductivity (at 25°C) Field pH Alkalinity Cadmium Chloride COD Fluoride Hardness Iron Lead Manganese Mercury Sodium Sulfate Total suspended solids VOC scan
Annual Monitoring Parameters			
Base/Neutral Extractable Compounds Acid Extractable Compounds	Base/Neutral Extractable Compounds Acid Extractable Compounds	Base/Neutral Extractable Compounds Acid Extractable Compounds	Base/Neutral Extractable Compounds Acid Extractable Compounds

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

Note: Leachate samples shall not be filtered. The color, odor and turbidity shall also be noted for all samples.

Note: Refer to Appendix III for a list of VOCs, parameter numbers, CAS numbers, synonyms and analytical methods required to run VOC analyses.

Note: Refer to Appendix IV for a list of metals and indicator parameters, the parameter numbers and the analytical methods required to run the analyses.

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 and be reported to the department semi-annually.				
Semi-annual Monitoring Parameters				
Field conductivity (at 25°C) Field pH Alkalinity Hardness Chloride COD Total Kjeldahl nitrogen Sodium Sulfate Other parameters specified by waste type in this table if accepted at the landfill	Field conductivity (at 25°C) Field pH Alkalinity Cadmium Hardness Chloride COD Lead Total Kjeldahl nitrogen Sodium Sulfate	Field conductivity (at 25°C) Field pH Alkalinity Hardness Chloride COD Total Kjeldahl nitrogen Sodium Sulfate	Field conductivity (at 25°C) Field pH Alkalinity Boron Hardness Chloride COD Total Kjeldahl nitrogen Sulfate	Field conductivity (at 25°C) Field pH Alkalinity Hardness Chloride COD Fluoride Total Kjeldahl nitrogen Sulfate
Annual Monitoring Parameters				
VOC Scan	VOC Scan	VOC Scan		VOC Scan

[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 shall take precedence. The color, odor and turbidity shall also be noted for all samples.

Note: Refer to Appendix III for a list of VOCs, parameter numbers, CAS numbers, synonyms and analytical methods required to run VOC analyses.

Note: Refer to Appendix IV for a list of metals and indicator parameters, the parameter numbers and the analytical methods required to run the analyses.

APPENDIX II
SUBSTANCES FOR ASSESSMENT MONITORING[1] AT MUNICIPAL SOLID WASTE LANDFILLS

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
Acenaphthene	34205	83-32-9	1,2-Dihydroacenaphthylene	8100*, 8270,8310
Acenaphthylene	34200	208-96-8		8100*, 8270,8310
Acetone	81552	67-64-1	2-Propanone	8260
Acetonitrile	76997	75-05-8	Methyl cyanide	8015,8260
Acetophenone	81553	98-86-2	1-Phenylethanone	8270
2-Acetylaminofluorene	73501	53-96-3	N-9H-fluoren-2-yl-Acetamide; 2-AAF	8270
Acrolein	34210	107-02-8	2-Propenal	8015,8030, 8260
Acrylonitrile	34215	107-13-1	2-Propenenitrile	8015,8030, 8260
Aldrin	39330	309-00-2	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1α,4α,4aβ,5α,8α-,8aβ)-	8081, 8080, 8270
Allyl chloride	78109	107-05-1	3-Chloro-1-propene	8021, 8260
4-Aminobiphenyl	77581	92-67-1	[1,1'-Biphenyl]-4-amine	8270
Anthracene	34220	120-12-7		8100*, 8270
Antimony	01097	7440-36-0		6010, 7040*, 7041
Arsenic	01002	7440-38-2		6010, 7060, 7061
Barium	01007	7440-39-3		6010, 7080*
Benzene	34030	71-43-2		8021,8260
Benzo[a]anthracene	34526	56-55-3	Benzanthracene	8100*, 8270, 8310
Benzo[b]fluoranthene	34230	205-99-2	Benz[e]acephenanthrylene	8100*, 8270, 8310
Benzo[k]fluoranthene	34242	207-08-9		8100*, 8270, 8310
Benzo[ghi]perylene	34521	191-24-2		8100*, 8270, 8310
Benzo[a]pyrene	34247	50-32-8		8100*, 8270, 8310
Benzyl alcohol	77147	100-51-6	Benzenemethanol	8270
Beryllium	01012	7440-41-7		6010, 7090, 7091
alpha-BHC	39076	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3β,4α,5β-,6β)-	8081, 8270, 8080, 8250*
beta-BHC	39338	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2β,3α,4β,5α-,6β)-	8081, 8270, 8080, 8250*
delta-BHC	34259	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3α,4β,5α-,6β)-	8081, 8270, 8080, 8250*

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
gamma-BHC; Lindane	39340	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3β,4α,5α-,6β)-	8081, 8270, 8080, 8250*
Bis(2-chloroethoxy)methane	34278	111-91-1	Ethane, 1,1'-[methylenebis(oxy)]bis-[2-chloro-	8270
Bis(2-chloroethyl)ether	34273	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	8270
Bis(2-chloro-1-methylethyl) ether [see note 6]	73522	108-60-1	2,2'-Dichlorodiisopropylether	8021, 8270
Bis(2-ethylhexyl) phthalate	39100	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester	8061, 8060*, 8270
Bomochloromethane	77297	74-97-5	Chlorobromomethane	8021, 8260
Bromodichloromethane	32101	75-27-4	Dichlorobromomethane	8021, 8260
Bromoform	32104	75-25-2	Tribromomethane	8021, 8260
4-Bromophenyl phenyl ether	34636	101-55-3	Benzene, 1-bromo-4-phenoxy-	8270
Butyl benzyl phthalate	34292	85-68-7	Benzyl butyl phthalate	8060*, 8061, 8270
Cadmium	01027	7440-43-9		6010, 7130*, 7131
Carbon disulfide	77041	75-15-0		8260
Carbon tetrachloride	32102	56-23-5	Tetrachloromethane	8021, 8260
Chlordane [see note 7]	39350	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	8081, 8080, 8250*
p-Chloroaniline	73529	106-47-8	Benzenamine, 4-chloro-	8270
Chlorobenzene	34301	108-90-7	Monochlorobenzene	8021, 8260
Chlorobenzilate	39460	510-15-6	Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester	8270
p-Chloro-m-cresol	34452	59-50-7	Phenol, 4-chloro-3-methyl-	8040*, 8041, 8270
Chloroethane	34311	75-00-3	Ethyl chloride	8021, 8260
Chloroform	32106	67-66-3	Trichloromethane	8021, 8260
2-Chloronaphthalene	34581	91-58-7		8120, 8270
2-Chlorophenol	34586	95-57-8		8040*, 8041, 8270
4-Chlorophenyl phenyl ether	34641	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8270
Chloroprene	81520	126-99-8	1,3-Butadiene, 2-chloro-	8021, 8260
Chromium	01034	7440-47-3		6010, 7190*, 7191
Chrysene	34320	218-01-9		8100*, 8270, 8310
Cobalt	01037	7440-48-3		6010, 7200*, 7201
Copper	01042	7440-50-8		6010, 7210, 7211
m-Cresol	77151	108-39-4	3-Methylphenol	8270
o-Cresol	77152	95-48-7	2-Methylphenol	8270
p-Cresol	77146	106-44-5	4-Methylphenol	8270
Cyanide	00720	57-12-5		9010
2,4-D; 2,4-Dichlorophenoxy-acetic acid	39730	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150, 8151
4,4'-DDD	39361	72-54-8	Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	8081, 8080, 8270

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
4,4'-DDE	39366	72-55-9	Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-	8081, 8080, 8270
4,4'-DDT	39371	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	8081, 8080, 8270
Diallate	73540	2303-16-4	Carbamothioic acid, bis(1-methylethyl)- , S- (2,3-dichloro-2-propenyl) ester	8270
Dibenzo[a,h]anthracene	34556	53-70-3	Dibenz[a,h]anthracene	8100*, 8270, 8310
Dibenzofuran	81302	132-64-9		8270
Dibromochloromethane	32105	124-48-1	Chlorodibromomethane	8021, 8260
1,2-Dibromo-3-chloropropane	38437	96-12-8	DBCP	8021, 8260, 8270
Ethylene dibromide	77651	106-93-4	EDB, 1,2-Dibromoethane	8021, 8260
Di-n-butyl phthalate	39110	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060*, 8270, 8061
o-Dichlorobenzene	34536	95-50-1	1,2-Dichlorobenzene	8021, 8120, 8270
m-Dichlorobenzene	34566	541-73-1	1,3-Dichlorobenzene	8021, 8120, 8270
p-Dichlorobenzene	34571	106-46-7	1,4-Dichlorobenzene	8021, 8120, 8270
3,3'-Dichlorobenzidine	34631	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	8270
trans-1,4-Dichloro-2-butene	73547	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8260
Dichlorodifluoromethane	34668	75-71-8	Freon 12, CFC-12	8021, 8260
1,1-Dichloroethane	34496	75-34-3	Ethyldidene chloride	8021, 8260
1,2-Dichloroethane	32103	107-06-2	Ethylene dichloride	8021, 8260
1,1-Dichloroethylene	34501	75-35-4	Vinylidene chloride; 1,1-Dichloroethene	8021, 8260
cis-1,2-Dichloroethylene	77093	156-59-2	cis-1,2-Dichloroethene	8021, 8260
trans-1,2-Dichloroethylene	34546	156-60-5	trans-1,2-Dichloroethene	8021, 8260
2,4-Dichlorophenol	34601	120-83-2		8040*, 8041, 8270
2,6-Dichlorophenol	77541	87-65-0		8270
1,2-Dichloropropane	34541	78-87-5	Propylene dichloride	8021, 8260
1,3-Dichloropropane	77173	142-28-9	Trimethylene chloride	8021, 8260
2,2-Dichloropropane	77170	594-20-7		8021, 8260
1,1-Dichloropropene	77168	563-58-6	1,1-dichloropropylene	8021, 8260
cis-1,3-Dichloropropene	34704	10061-01-5	1,3-dichloropropylene, (Z)	8021, 8260
trans-1,3-Dichloropropene	34699	10061-02-6	1,3-dichloropropylene, (E)	8021, 8260
Dieldrin	39380	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,-7,7a-octahydro-, (1aα,2β,2aα,3β,6β,6aα,7β,7aα)-	8081, 8080, 8270
Diethyl phthalate	34336	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8081, 8060*, 8270
O,O-Diethyl O-2-pyrazinyl phosphorothioate	73553	297-97-2	Thionazin	8270
Dimethoate	46314	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	8270

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
p-(Dimethylamino)azobenzene	73558	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270
7,12-Dimethylbenz[a]anthracene	73559	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270
3,3'-Dimethylbenzidine	73560	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270
2,4-Dimethylphenol	34606	105-67-9	2,4-Dimethylphenol	8040*, 8041, 8270
Dimethyl phthalate	34341	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060*, 8270
m-Dinitrobenzene	45622	99-65-0	1,3-Dinitrobenzene	8270
4,6-Dinitro-o-cresol	79533	534-52-1	2-Methyl-4,6-dinitrophenol	8040*, 8041, 8270
2,4-Dinitrophenol	34616	51-28-5	2,4-Dinitrophenol	8040*, 8041, 8270
2,4-Dinitrotoluene	34611	121-14-2	1-Methyl-2,4-dinitrobenzene	8090*, 8091, 8270
2,6-Dinitrotoluene	34626	606-20-2	2-Methyl-1,3-dinitrobenzene	8090*, 8091, 8270
Dinoseb	81287	88-85-7	DNBP; 2-sec-Butyl-4,6-dinitrophenol	8150, 8270
Di-n-octyl phthalate	34596	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060*, 8061, 8270
Diphenylamine	77579	122-39-4	Benzenamine, N-phenyl-	8270
Disulfoton	81888	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	8041, 8140*, 8270
Endosulfan I	34361	959-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3α,5aβ,6α,9α,9aβ)-	8081, 8270, 8080, 8250*
Endosulfan II	34356	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3α,5aα,6β,9β,9aα)-	8081, 8270, 8080
Endosulfan sulfate	34351	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide	8081, 8080, 8270
Endrin	39390	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,-7,7a-octahydro-, (1aα, 2β,2aβ,3α,6α, 6aβ,7β,7aα)-	8081, 8270, 8080, 8250*
Endrin aldehyde	34366	7421-93-4	1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1α,2β,2aβ,4β,4aβ,-5β,6aβ,6bβ,7R*)-	8081, 8080, 8270
Ethylbenzene	78113	100-41-4		8021, 8260
Ethyl methacrylate	73570	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015, 8260, 8270
Ethyl methanesulfonate	73571	62-50-0	Methanesulfonic acid, ethyl ester	8270

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
Famphur	38462	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl]-O,O-dimethyl ester	8270
Fluoranthene	34376	206-44-0		8100*, 8270
Fluorene	34381	86-73-7	9H-Fluorene	8100*, 8270
Heptachlor	39410	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	8081, 8080, 8270
Heptachlor epoxide	39420	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,-6,6a,-hexahydro,(1aα,1bβ,2α,5α,5aβ,6β,6aα)	8081, 8080, 8270
Hexachlorobenzene	39700	118-74-1		8120, 8270
Hexachlorobutadiene	34391	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8120, 8270
Hexachlorocyclopentadiene	34386	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120, 8270
Hexachloroethane	34396	67-72-1		8120, 8270
Hexachlorophene	73575	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	8270
Hexachloropropene	73576	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270
2-Hexanone	77103	591-78-6	Methyl butyl ketone	8015, 8260
Indeno(1,2,3-cd)pyrene	34403	193-39-5	Indeno[1,2,3-cd]pyrene	8100*, 8270
Isobutyl alcohol	77033	78-83-1	1-Propanol, 2-methyl-	8015, 8260
Isodrin	39430	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a hexahydro-(1α,4α,4aβ,5β,8β-,8aβ)-	8270
Isophorone	34408	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090*, 8270
Isosafrole	73582	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270
Kepone	81281	143-50-0	1,3,4-Metheno-2H-cyclobuta-[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloro-octahydro-	8270
Lead	01051	7439-92-1		6010, 7420*, 7421
Mercury	71900	7439-97-6		7470
Methacrylonitrile	81593	126-98-7	2-Propenenitrile, 2-methyl-	8015, 8260
Methapyrilene	73589	91-80-5	1,2,Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'- (2-thienylmethyl)-	8270
Methoxychlor	39480	72-43-5	Benzene, 1,1'-(2,2,2,trichloroethylidene)bis [4-methoxy-	8081, 8080, 8270
Methyl bromide	34413	74-83-9	Bromomethane	8021, 8260
Methyl chloride	34418	74-87-3	Chloromethane	8021, 8260
3-Methylcholanthrene	73591	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	8270
Methyl ethyl ketone	81595	78-93-3	2-Butanone; MEK	8015, 8260
Methyl iodide	77424	74-88-4	Iodomethane	8021, 8260
Methyl methacrylate	81597	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015, 8260
Methyl methanesulfonate	73595	66-27-3	Methanesulfonic acid, methyl ester	8270

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
2-Methylnaphthalene	77416	91-57-6		8270
Methyl parathion	39600	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	8141, 8140*, 8270
4-Methyl-2-pentanone	78133	108-10-1	Methyl isobutyl ketone	8015, 8260
Methyl tert-butyl ether	78032	1634-04-4	MTBE	8021, 8260
Methylene bromide	77596	74-95-3	Dibromomethane	8021, 8260
Methylene chloride	34423	75-09-2	Dichloromethane	8021, 8260
Naphthalene	34696	91-20-3		8100*, 8270
1,4-Naphthoquinone	73599	130-15-4	1,4-Naphthalenedione	8270
1-Naphthylamine	73600	134-32-7	1-Naphthalenamine	8270
2-Naphthylamine	73601	91-59-8	2-Naphthalenamine	8270
Nickel	01067	7440-02-0		6010, 7520*, 7521
o-Nitroaniline		88-74-4	2-Nitrobenzenamine	8270
m-Nitroaniline		99-09-2	3-Nitrobenzenamine	8270
p-Nitroaniline	73605	100-01-6	4-Nitrobenzenamine	8270
Nitrobenzene	34447	98-95-3		8090*, 8270
o-Nitrophenol	34591	88-75-5	2-Nitrophenol	8040*, 8041, 8270
p-Nitrophenol	34646	100-02-7	4-Nitrophenol	8040*, 8041, 8270
N-Nitrosodi-n-butylamine	78207	924-16-3	1-Butanamine, N-butyl-N-nitroso-	8270
N-Nitrosodiethylamine	78200	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270
N-Nitrosodimethylamine	34438	62-75-9	Methanamine, N-methyl-N-nitroso-	8270
N-Nitrosodiphenylamine	34433	86-30-6	Benzenamine, N-nitroso-N-phenyl-	8270
N-Nitrosodipropylamine	34428	621-64-7	Di-n-propylnitrosamine	8270
N-Nitrosomethylethylamine	73613	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270
N-Nitrosopiperidine	73619	100-75-4	Piperidine, 1-nitroso-	8270
N-Nitrosopyrrolidine	78206	930-55-2	Pyrrolidine, 1-nitroso-	8270
5-Nitro-o-toluidine	73622	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270
Parathion	39540	56-38-2	Phosphorothioic acid, O,O-diethyl-O-(4-nitrophenyl) ester	8270
Pentachlorobenzene	77793	608-93-5		8270
Pentachloronitrobenzene	81316	82-68-8		8270
Pentachlorophenol	39032	87-86-5		8040*, 8041, 8270
Phenacetin	73626	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270
Phenanthrene	34461	85-01-8		8100*, 8270
Phenol	34694	108-95-2		8040*, 8041, 8270
p-Phenylenediamine	73628	106-50-3	1,4-Benzenediamine	8270
Phorate	46313	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	8041, 8140*, 8270
Polychlorinated biphenyls		See Note 8	PCBs; 1,1'-Biphenyl, chloro derivatives, Arochlors	8081, 8270, 8080, 8250*
Pronamide	39080	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270
Propionitrile	77007	107-12-0	Ethyl cyanide; Propanenitrile	8015, 8260
Pyrene	34469	129-00-0		8100*, 8270
Safrole	77545	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-	8270
Selenium	01147	7782-49-2		6010, 7740, 7741
Silver	01077	7440-22-4		6010, 7760*, 7761

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
Silvex	39760	93-72-1	2,4,5-TP; Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150, 8151
Styrene	77128	100-42-5	Ethenylbenzene	8021, 8260
Sulfide	00745	18496-25-8		9030
2,4,5-T	39740	93-76-5	2,4,5-Trichloro-phenoxyacetic acid	8150, 8151
1,2,4,5-Tetrachlorobenzene	77734	95-94-3		8270
1,1,1,2-Tetrachloroethane	77562	630-20-6		8021, 8260
1,1,2,2-Tetrachloroethane	34516	79-34-5		8021, 8260
Tetrachloroethylene	34475	127-18-4	Perchloroethylene; Tetrachloroethene; PCE	8021, 8260
2,3,4,6-Tetrachlorophenol	77770	58-90-2		8270
Thallium	01059	7440-28-0		6010, 7840, 7841
Tin	01102	7440-31-5		6010, 7870
Toluene	78131	108-88-3	Methylbenzene	8021, 8260
o-Toluidine	77142	95-53-4	2-Methylbenzenamine	8270
Toxaphene	39400	See note 9		8081,8270, 8080, 8250*
1,2,4-Trichlorobenzene	34551	120-82-1		8270
1,1,1-Trichloroethane	34506	71-55-6	Methylchloroform	8021, 8260
1,1,2-Trichloroethane	34511	79-00-5		8021, 8260
Trichloroethylene	39180	79-01-6	Trichloroethene; TCE	8021, 8260
Trichlorofluoromethane	34488	75-69-4	Freon 11, Fluorotrichloromethane, CFC-11	8021, 8260
2,4,5-Trichlorophenol	77687	95-95-4		8270
2,4,6-Trichlorophenol	34621	88-06-2		8040*, 8041,8270
1,2,3-Trichloropropane	77443	96-18-4		8021, 8260
O,O,O-Triethyl phosphorothioate	73652	126-68-1	Phosphorothioic acid, O,O,O-triethyl ester	8270
sym-Trinitrobenzene	73653	99-35-4	Benzene, 1,3,5-trinitro-	8270
Vanadium	01087	7440-62-2		6010, 7910, 7911
Vinyl acetate	77057	108-05-4	Ethenyl ester acetic acid	8260
Vinyl chloride	39175	75-01-4	Chloroethene	8021, 8260
Xylene (total) [see note 10]	81551	1330-20-7	Dimethylbenzene	8021, 8260
Zinc	01092	7440-66-6		6010, 7950, 7951

[1] This list includes all the substances required for assessment monitoring under EPA Subtitle D (40 CFR Part 258 Appendix II).

[2] Common names are those widely used in government regulations, scientific publications and commerce; synonyms exist for many chemicals.

[3] Parameter No. refers to the Wisconsin identification number and the EPA Storet number for each parameter. The parameter code number refers to a specific parameter, the medium of concentration, and the units of concentration.

[4] Chemical Abstracts Service registry number.

[5] For Analytical Methods, refer to the analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, Final Update 2B, January 1995. For the appropriate extraction procedure refer, in the same document, to Table 2-37 "Preparation Methods for Organic Analytes," and refer to Table 2-36 for the "Required Containers, Preservation Techniques, and Holding Times for Aqueous Matrices."

Note: Analytical details can be found in SW-846 and in documentation on file with EPA. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable methods for monitoring an analyte under the regulations. The publication SW-846 may be obtained from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4600.

Note: Copies of the test procedures are available for inspection at the offices the department of natural resources, the secretary of state, and the revisor of statutes.

[6] This substance is often called Bis(2-chloroisopropyl) ether, the name the Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2-chloro-(CAS RN 39638-32-9).

[7] Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6).

[8] Polychlorinated biphenyls (CAS RN 01336-36-3); this category contains congener chemicals, including constituents of Aroclor-1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 11104-28-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1) and Aroclor-1260 (CAS RN 11096-82-5).

[9] Toxaphene: This entry includes congener chemicals contained in technical toxaphene CAS RN 8001-35-2), i.e., chlorinated camphene.

[10] 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).

* This method incorporates outdated analytical technology and is scheduled to be removed from EPA approved lists.

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

Common name[2]	Parameter No.[3]	CAS RN[4]	Synonyms	Analytical methods[5]
Acetone[1]	81552	67-64-1	2-Propanone	8260
Benzene	34030	71-43-2		8021, 8260
Bromodichloromethane	32101	75-27-4	Dichlorobromomethane	8021, 8260
Bromoform	32104	75-25-2	Tribromomethane	8021, 8260
Carbon disulfide[1]	77041	75-15-0		8260
Carbon tetrachloride	32102	56-23-5	Tetrachloromethane	8021, 8260
Chlorobenzene	34301	108-90-7	Monochlorobenzene	8021, 8260
Chloroethane	34311	75-00-3	Ethyl chloride	8021, 8260
Chloroform	32106	67-66-3	Trichloromethane	8021, 8260
Dibromochloromethane	32105	124-48-1	Chlorodibromomethane	8021, 8260
1,2-Dibromo-3-chloropropane	38437	96-12-8	DBCP	8021, 8260, 8270
Ethylene dibromide	77651	106-93-4	EDB; 1,2-Dibromoethane	8021, 8260
o-Dichlorobenzene	34536	95-50-1	1,2-Dichlorobenzene	8021, 8270
m-Dichlorobenzene	34566	541-73-1	1,3-Dichlorobenzene	8021, 8270
p-Dichlorobenzene	34571	106-46-7	1,4-Dichlorobenzene	8021, 8270
Dichlorodifluoromethane	34668	75-71-8	Freon 12, Difluorodichloromethane	8021, 8260
1,1-Dichloroethane	34496	75-34-3		8021, 8260
1,2-Dichloroethane	32103	107-06-2	Ethylene dichloride	8021, 8260
1,1-Dichloroethylene	34501	75-35-4	Vinylidene chloride	8021, 8260
cis-1,2-Dichloroethylene	77093	156-59-2	cis-1,2-Dichloroethene	8021, 8260
trans-1,2-Dichloroethylene	34546	156-60-5	trans-1,2-Dichloroethene	8021, 8260
1,2-Dichloropropane	34541	78-87-5		8021, 8260
cis-1,3-Dichloropropylene	34704	10061-01-5	cis-1,3-Dichloropropene, Z-Dichloropropylene	8021, 8260
trans-1,3-Dichloropropylene	34699	10061-02-6	trans-1,3-Dichloropropene, E-Dichloropropylene	8021, 8260
Ethylbenzene	78113	100-41-4		8021, 8260
Methyl bromide	34413	74-83-9	Bromomethane	8021, 8260
Methyl chloride	34418	74-87-3	Chloromethane	8021, 8260
Methylene bromide	77596	74-95-3	Dibromomethane	8021, 8260
Methylene chloride	34423	75-09-2	Dichloromethane	8021, 8260
Methyl ethyl ketone[1]	81595	78-93-3	2-Butanone; MEK	8015, 8260
Methyl tert-butyl ether	78032	1634-04-4	MTBE	8021, 8260
Naphthalene[1]	34696	91-20-3		8100*, 8270
Styrene	77128	100-42-5	Ethenylbenzene	8021, 8260
Tetrachloroethylene	34475	127-18-4	Perchloroethylene; Tetrachloroethene; PCE	8021, 8260
Tetrahydrofuran[1]	81607	109-99-9	THF	8260
Toluene	78131	108-88-3	Methylbenzene	8021, 8260
1,1,1-Trichloroethane	34506	71-55-6	Methylchloroform	8021, 8260
1,1,2-Trichloroethane	34511	79-00-5		8021, 8260
Trichloroethylene	39180	79-01-6	Trichloroethene; TCE	8021, 8260
Trichlorofluoromethane	34488	75-69-4	Fluorotrichloromethane, Freon 11	8021, 8260
Vinyl chloride	39175	75-01-4	Chloroethene	8021, 8260
Xylene (total) [see note 6]	81551	1330-20-7	Dimethylbenzene	8021, 8260

[1] Includes the Volatile Organic Compounds (VOCs) necessary when a "VOC Scan" is required under s. NR 507 Wis. Adm. Code Appendix I Table 1, Table 4 and Table 5. Acetone, Carbon disulfide, Methyl ethyl ketone, Naphthalene, 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] Parameter No. refers to the Wisconsin identification number and the EPA Storet number for each parameter. The parameter code number refers to a specific parameter, the medium of concentration, and the units of concentration.

[4] Chemical Abstracts Service registry number.

[5] For Analytical Methods, refer to the analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, Final Update 2B, January 1995. For the appropriate extraction procedure refer, in the same document, to Table 2-37 "Preparation Methods for Organic Analytes," and refer to Table 2-36 for the "Required Containers, Preservation Techniques, and Holding Times for Aqueous Matrices."

Note: Analytical details can be found in SW-846 and in documentation on file with EPA. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable methods for monitoring an analyte under the regulations. The publication SW-846 may be obtained from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4600.

Note: Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state, and the revisor of statutes.

[6] 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).

APPENDIX IV
LIST OF METALS AND INDICATOR PARAMETERS[1] FOR MUNICIPAL AND INDUSTRIAL SOLID WASTE LANDFILLS

Parameter	Parameter Number[2] (Total or unfiltered)	Parameter Number[2] (Dissolved or Filtered)	Regulatory Category[4]	Analytical methods[3,5,6]
Alkalinity	00410	39036	A,B	301.1[5] 301.2[5] 2320 B[6]
Antimony	01097	01095	D	6010, 7040*, 7041
Arsenic	01002	01000	C,D	6010, 7060, 7061
Barium	01007	01005	C,D	6010, 7080*
Beryllium	01012	01010	D	6010, 7090, 7091
Biochemical oxygen demand, BOD_5	00310	00311	B	405.1[5*] 5210[6]
Boron	01022	01020	B	6010
Cadmium	01027	01025	B,C,D	6010, 7130*, 7131
Calcium	00916	00915	E	6010, 7140
Chemical oxygen demand, COD	00340	00341	A,B	410.1[5] 410.2[5] 410.3[5] 410.4[5] 5220 B[6]
Chloride	00940	82295	A,B,C	9250
Chromium	01034	01030	C,D	6010, 7190*, 7191
Cobalt	01037	01035	D	6010, 7200*, 7201
Copper	01042	01040	C,D	6010, 7210
Cyanide	00720	00723	E	9010
Fluoride	00951	00950	B,C	300.0[5] 340.2[5] 340.1[5] 4500-F-B[6] 4500-F-C[6] 4500-F-D[6] 4500-F-E[6]
Hardness	00900	22413	A,B	130.1[5] 130.2[5] 2340 C[6] 6010
Iron	74010	01046	A,B,C	7380, 7381
Lead	01051	01049	B,C,D	6010, 7420*, 7421
Magnesium	00927	00925	E	6010, 7450
Manganese	01055	01056	C	6010, 7460, 7461
Mercury	71900	71890	C	7470
Nickel	01067	01065	D	6010, 7520*, 7521
Nitrate (NO_3-N)	00620	00618	E	9200

Parameter	Parameter Number[2] (Total or unfiltered)	Parameter Number[2] (Dissolved or Filtered)	Regulatory Category[4]	Analytical methods[3,5,6]
Nitrate + Nitrite (NO_3+NO_2)	00630	00631	C	353.3[5] 353.2[5] 353.4[5] 4500-NO_3E[6] 4500-NO_3F[6] 4500-NO_3G[6]
Nitrite (NO_2-N)	00615	00613	E	345.1[5] 4400-NO_2B[6]
Ammonia nitrogen	00610	00608	B	350.2[5] 350.3[5] 350.1[5] 4500-NH_3B[6] 4500-NH_3C[6] 4500-NH_3E[6] 4500-NH_3F[6] 4500-NH_3H[6]
Kjeldahl nitrogen	00625	00623	E	351.3[5] 351.1[5] 351.2[5] 351.4[5] 4500-N-B[6] 4500-NH_3E[6] 4500-NH_3C[6] 4500-NH_3F[6] 4500-NH_3H[6]
Organic nitrogen	00605	00607	E	
Total nitrogen	00600	00601	E	
pH (Lab)	00403	00403	E	9040
pH (Field)	00400	00400	A,B	
Potassium	00937	00935	E	258.1[5] 200.7[5] 3111 B[6] 3120 B[6] 3500-KD[6]
Selenium	01147	01145	B,C,D	6010, 7740, 7741
Silver	01077	01075	C,D	6010, 7760*, 7761
Sodium	00929	00930	B	7770
Solids, Total Dissolved	00247	00360	A,B,C	
Specific Conductance (Lab)	00095	00095	E	9050
Specific Conductance (Field)	00094	00094	A,B	9050
Sulfate	00945	00946	B,C	9035
Sulfide	00745	00746	E	9030
Temperature (Field)	00010	00010	A,B	170.1[5] 2550 B[6]
Thallium	01059	01057	D	6010, 7840, 7841
Tin	01102	01100	E	6010, 7870
Vanadium	01087	01085	D	6010, 7910, 7911
Zinc	01092	01090	C,D	6010, 7950 7951

[1] This list includes all the metals and inorganic indicator parameters required for groundwater monitoring as part of the Wisconsin Solid Waste Program. Some solid waste facilities may require monitoring under other regulatory programs. Refer to tables in the text for the specific parameter categories required.

[2] Parameter Number refers to the Wisconsin identification number and the EPA Storet number for each parameter. The parameter code number refers to a specific parameter, the medium of concentration, and the units of concentration.

[3] For Analytical Methods, refer to the analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, Final Update 2B, January 1995. Refer to Table 2-36 for the "Required Containers, Preservation Techniques, and Holding Times for Aqueous Matrices."

Note: Analytical details can be found in SW-846 and in documentation on file with EPA. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable methods for monitoring an analyte under the regulations. The publication SW-846 may be obtained from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4600.

Note: Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

[4] Regulatory categories:

A. Municipal Solid Waste Detection Monitoring Parameter (see Appendix I, Tables 1, 4, and 5 c. NR 507 Wis. Adm. Code)
B. Special Waste Detection Monitoring Parameter (see Appendix I, Tables 2, 4, and 5, c. NR 507 Wis. Adm. Code)
C. Public Health and Welfare Parameter for Background Water Quality Monitoring (see Appendix I, Table 3, c. NR 507 Wis. Adm. Code)
D. EPA Subtitle D Metal for Background and Detection Monitoring (40 CFR Part 258 Appendix I)
E. Site Specific Monitoring Parameter

[5] "Methods for Chemical Analysis of Water and Waste", EPA-600/4-79-020 United States Environmental Protection Agency, Revised March 1983 and 1979 where applicable. Available from National Technical Information Service, 5285 Port Royal Road, Springfield Virginia 22161.

Note: Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

[6] "Standard Methods for the Examination of Water and Wastewater", Joint Editorial Board, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 17th Edition, 1989. Available from American Public Health Association, 1015 15th Street NW, Washington D.C. 20005.

Note: Copies of the test procedures are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

* This method incorporates outdated analytical technology and is scheduled to be removed from EPA approved lists.

State of Wisconsin
Department of Natural Resources

GROUNDWATER MONITORING WELL INFORMATION FORM
Chapter 144, Wis. Stats.
Form 4400-89 Rev. 1-90

Facility Name | Facility ID Number | Date | Completed By (Name and Firm)

Well Name	DNR Well ID Number	Well Location	N	S	E	W	Date Established	Well Casing Diam.	Well Casing Type	Elevations Top of Well Casing	Elevations Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Screen Length	Well Depth	Type of Well (√) PIEZ	OW	PW	LYS	Other	Abandoned	Enf. Stds Apply	Gradient U, S, D or N

Location Coordinates Are:

☐ Local Grid System (preferred) ☐ State Plane Coordinate ☐ Northern ☐ Central

Remarks: _____

PSS Use:

File Maint. Completed: _____

Other: _____

Appendix V Form A - GROUNDWATER MONITORING WELL INFORMATION FORM

Form B - MONITORING WELL CONSTRUCTION FORM

State of Wisconsin Department of Natural Resources — Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐ Env. Response & Repair ☐ Underground Tanks ☐ Other ☐ _____ — MONITORING WELL CONSTRUCTION Form 4400-113A — Rev. 4-90

Facility/Project Name	Local Grid Location of Well ☐N ☐E ft ☐S ft ☐W.	Well Name
Facility License, Permit or Monitoring Number	Grid Origin Location Lat ___ ___ ___ Long. ___ ___ ___ or St. Plane _____ ft. N, _____ ft. E.	Wis. Unique Well Number / DNR Well Number
Type of Well: Water Table Observation Well ☐ 11; Piezometer ☐ 12	Section Location of Waste/Source ☐E ____¼ of ____¼ of Sec. ____, T____N,R ☐W.	Date Well Installed ___ ___ / ___ ___ / ___ ___ (M M D D Y Y)
Distance Well is From Waste/Source Boundary ft.	Location of Well Relative to Waste/Source U ☐ Upgradient S ☐ Sidegradient D ☐ Downgradient N ☐ Not Known	Well Installed By: (Persons' Name and Firm)
Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No		

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

D. Surface seal, bottom _____ ft. MSL or _____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock

13. Sieve analysis attached? ☐ Yes ☐ No

14. Drilling method used: Rotary ☐ 50; Hollow Stem Auger ☐ 41; _____ Other ▒

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☐ No

Describe _____

17. Source of water (attach analysis):

_____

E. Bentonite seal, top _____ ft. MSL or _____ ft.

F. Fine sand, top _____ ft. MSL or _____ ft.

G. Filter pack, top _____ ft. MSL or _____ ft.

H. Screen joint, top _____ ft. MSL or _____ ft.

I. Well bottom _____ ft. MSL or _____ ft.

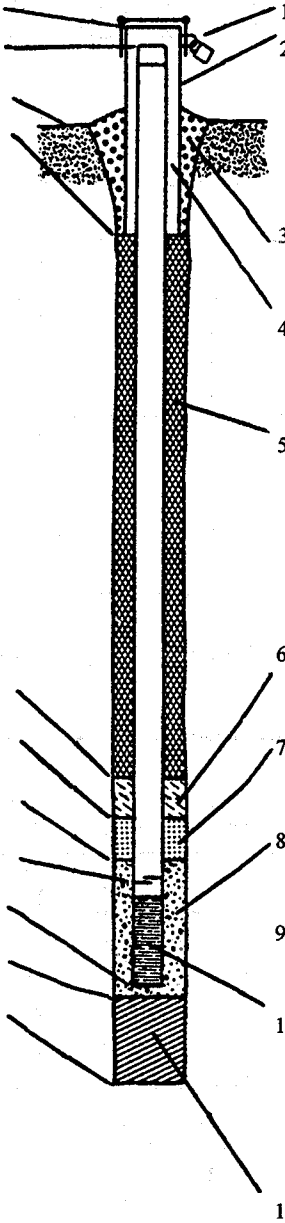
J. Filter pack, bottom _____ ft. MSL or _____ ft.

K. Borehole, bottom _____ ft. MSL or _____ ft.

L. Borehole, diameter ___ in.

M. O.D. well casing ___ in.

N. I.D. well casing ___ in.



1. Cap and lock? ☐ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: ___ in.
b. Length: ___ ft.
c. Material: _____ Steel ☐ 04; Other ☐ __
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

3. Surface seal: _____ Bentonite ☐ 30; Concrete ☐ 01; Other ☐ __

4. Material between well casing and protective pipe: _____ Bentonite ☐ 30; Annular space seal ☐ __; Other ☐ __

5. Annular space seal:
a. Granular Bentonite ☐ 33
b. ___ Lbs/gal mud weight Bentonite-sand slurry ☐ 35
c. ___ Lbs/gal mud weight Bentonite slurry ☐ 31
d. ___ % Bentonite Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☐ 08

6. Bentonite seal:
a. Bentonite granules ☐ 33
b. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite pellets ☐ 32
c. _____ Other ☐ __

7. Fine sand material: Manufacturer, product name, mesh size
a. _____ __
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product, mesh size
a. _____ __
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☐ 23; Flush threaded PVC schedule 80 ☐ 24; _____ Other ☐ __

10. Screen Material: _____ __
a. Screen type: Factory cut ☐ 11; Continuous slot ☐ 01; _____ Other ☐ __
b. Manufacturer _____
c. Slot size: 0.___ in.
d. Slotted length: ___ ft.

11. Backfill material (below filter pack): _____ None ☐ 14; Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm

Form C - MONITORING WELL DEVELOPMENT FORM

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

Route to: Solid Waste [ ] Haz. Waste [ ] Wastewater [ ]
Env. Response & Repair [ ] Underground Tanks [ ] Other [ ] _____

Facility/Project Name	County Name	Well Name

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? [ ] Yes [ ] No

2. Well development method

surged with bailer and bailed	[ ]	41
surged with bailer and pumped	[ ]	61
surged with block and bailed	[ ]	42
surged with block and pumped	[ ]	62
surged with block, bailed and pumped	[ ]	70
compressed air	[ ]	20
bailed only	[ ]	10
pumped only	[ ]	51
pumped slowly	[ ]	50
other	[ ]	__

3. Time spent developing well _____ min.

4. Depth of well (from top of well casing) _____ ft.

5. Inside diameter of well _____ in.

6. Volume of water in filter pack and well casing _____ gal.

7. Volume of water removed from well _____ gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added:
_____

10. Analysis performed on water added? [ ] Yes [ ] No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. _____ ft.	_____ ft.
Date	b. ___/___/___ mm dd yy	___/___/___ mm dd yy
Time	c. ___:___ [ ] a.m. [ ] p.m.	___:___ [ ] a.m. [ ] p.m.
12. Sediments in well bottom	_____ inches	_____ inches
13. Water clarity	Clear [ ] 10 Turbid [ ] 15 (Describe) _____	Clear [ ] 20 Turbid [ ] 25 (Describe) _____

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Additional comments on development:

Well developed by: Person's Name and Firm

Name:

Firm:

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: _____

Print Initials: ___ ___ ___

Firm:

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Form D - WELL/DRILLHOLE/BOREHOLE ABANDONMENT FORM

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5B Rev. 12-91

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location | County

1/4 of 1/4 of Sec. ; T. N; R. ☐ E ☐ W

(if applicable) Gov't Lot | Grid Number

Grid Location
ft. ☐ N. ☐ S., ft ☐ E. ☐ W.

Civil Town Name

Street Address of Well

City, Village

(2) FACILITY NAME

Original Well Owner (If Known)

Present Well Owner

Street or Route

City, State, Zip Code

Facility Well No. and/or Name (If Applicable) | WI Unique Well No.

Reason For Abandonment

Date of Abandonment

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On

(Date)

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☐ Borehole

Construction Report Available?
☐ Yes ☐ No

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify)

Formation Type:
☐ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) (From groundsurface)

Casing Diameter (ins.)

Casing Depth (ft.)

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown
If Yes, To What Depth? Feet

(4) Depth to Water (Feet)

Pump & Piping Removed? ☐ Yes ☐ No ☐ Not Applicable
Liner(s) Removed? ☐ Yes ☐ No ☐ Not Applicable
Screen Removed? ☐ Yes ☐ No ☐ Not Applicable
Casing Left in Place? ☐ Yes ☐ No ☐ Not Applicable
If No, Explain

Was Casing Cut Off Below Surface? ☐ Yes ☐ No
Did Sealing Material Rise to Surface? ☐ Yes ☐ No
Did Material Settle After 24 Hours? ☐ Yes ☐ No
If Yes, Was Hole Retopped? ☐ Yes ☐ No

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Dump Bailer ☐ Other (Explain)

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☐ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite
☐ Bentonite-Cement Grout

(7) Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
	Surface			

(8) Comments:

(9) Name of Person or Firm Doing Sealing Work

Signature of Person Doing Work | Date Signed

Street or Route | Telephone Number

City, State, Zip Code

Form E - SOIL BORING LOG INFORMATION FORM

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 5-92

Page _____ of _____

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
	_ _ _ _ _ _ _	

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
	M M / D D / Y Y	M M / D D / Y Y	

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _ _ _		_____ Feet MSL	_____ Feet MSL	_____ inches

Boring Location
State Plane _____ N, _____ E S/C/N
Lat ° ' "
_____ 1/4 of _____ 1/4 of Section _____, T _____ N, R _____ E/W
Long ° ' "

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
	_ _	

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Form F - GROUNDWATER MONITORING INVENTORY FORM

Department of Natural Resources

GROUNDWATER MONITORING INVENTORY FORM
Form 3300-67 Rev. 8-93

Wisconsin Unique Well Number [ ][ ][ ][ ][ ] ☐ Add ☐ Change

Inventory Completed By (Last Name, First, MI) _____ Date __ __/__ __/__ __ __ __ (m m d d y y y y) With ☐ DNR ☐ _____

Facility ID # _____

Facility Name _____ Local Well ID _____

High Cap Well # _____

Primary Contact Name (Last, First, MI)

Telephone Number ( )

Mailing Address

City State Zip Code

☐ Owner ☐ Driller ☐ Operator ☐ Business ☐ Occupant ☐ Facility ☐ Consultant ☐ Sampler ☐ Manager ☐ Other ☐ Contractor

Other Contact Name (Last, First, MI)

Telephone Number ( )

Mailing Address

City State Zip Code

☐ Owner ☐ Driller ☐ Operator ☐ Business ☐ Occupant ☐ Facility ☐ Consultant ☐ Sampler ☐ Manager ☐ Other ☐ Contractor

Well Location

☐ Town ☐ City ☐ Village | Fire # (If avail.) | County

Grid or Street Address or Road (If avail.)

Govt. Lot # _____

OR

____1/4 of ____1/4 of Section ____

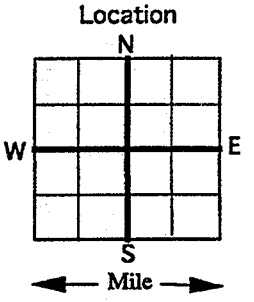
Subdivision Name | Lot | Block

T _____; R _____ ☐ E ☐ W

OR Latitude Deg. Min. Sec.

Longitude

(X) 1/4 1/4 Sec. Location



Construction Type
☐ Drilled ☐ Driven Point ☐ Jetted ☐ Dug ☐ Spring ☐ Other

Land Surface Elevation _____ ft. MSL

Number of Wells on Property _____

Construction Date __ __/__ __/__ __ __ __ (m m d d y y y y)

Constructor

Well Use
☐ Private Potable ☐ Priv. Non-Potable ☐ Monitoring Well ☐ Community-Municipal ☐ Community OTM ☐ Non Transient Non-Com. ☐ Transient Non-Com.

Source of Well Data
☐ Well Report ☐ Owner/Occupant ☐ Other*

Depth From Land Surface To:
Bedrock _____ ft.
Well Bottom _____ ft.
Static Water _____ ft.
Casing Bottom _____ ft.

Casing Diameter _____ in.

Water Bearing Formation
☐ Unconsolidated ☐ Limestone ☐ Sandstone ☐ Shale ☐ Crystalline

Well Status
☐ Active Use ☐ Inactive ☐ Perm Filled

Comments: eg. Reason for inventory, Samples taken, Directions to property, Details of well location on property.

*For "Other", enter a description in the comment area if needed.

SECTION 188. NR 508 is repealed and recreated to read:

CHAPTER NR 508

RESPONSES WHEN A GROUNDWATER STANDARD IS ATTAINED OR EXCEEDED

NR 508.01 PURPOSE. The purpose of this chapter is to establish procedures for responding to a groundwater standard which is attained or exceeded at any groundwater monitoring well at a solid waste facility and for conducting assessment monitoring at subtitle D wells. This chapter is adopted under ss. 144.43 to 144.47 and 227.11, Stats.

NR 508.02 APPLICABILITY. (1) Except as otherwise provided, this chapter governs all solid waste facilities as defined by s. 144.43(5), Stats., except hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to 690, and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

(2) This chapter does not apply to the design, construction or operation of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes approved under s. 144.04, Stats., or permitted under ch. 147, Stats., nor to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 144.04, Stats., or permitted under ch. 147, Stats., except for facilities used for the disposal of solid waste.

NR 508.03 DEFINITIONS. The terms used in this chapter are defined in s. NR 500.03.

NR 508.04 RESPONSES WHEN A GROUNDWATER STANDARD IS ATTAINED OR EXCEEDED AT ANY GROUNDWATER MONITORING WELL. If a PAL, ACL or ES is attained or exceeded at any groundwater monitoring 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).

(1) The owner or operator shall notify the department in accordance with s. NR 507.30.

(2) The owner or operator shall respond in accordance with s. NR 140.24 or 140.26.

(3) 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).

(4) If required by the department, the owner or operator shall evaluate and select remedial action options and develop a remedial action options report in accordance with ch. NR 722. Any soil contamination shall be addressed in

accordance with the requirements of ch. NR 720.

(5) If the owner or operator implements remedial action, the department shall determine whether the remedial action has met the requirements of ch. NR 140 in accordance with ch. NR 726.

Note: For the purpose of this chapter the department considers a value to be confirmed if a follow up field sample attains or exceeds the groundwater standard.

Note: Section NR 140.14(3) addresses exceedances for analytical results that fall between the limit of detection and the limit of quantitation.

NR 508.05 RESPONSES WHEN A GROUNDWATER STANDARD IS ATTAINED OR EXCEEDED AT A SUBTITLE D WELL. If a PAL, ACL or ES is attained or exceeded at a subtitle D well and the value is confirmed, the owner or operator shall continue detection monitoring in accordance with s. NR 507.19 and shall respond in accordance with s. NR 508.04 and the following requirements:

(1) The owner or operator may demonstrate that a reported value represents a false exceedance of a groundwater standard in accordance with s. NR 507.28(3). If the department does not concur with the written demonstration within 30 days, the owner or operator shall begin assessment monitoring in accordance with this subsection. If the department concurs within 30 days after receipt of the demonstration, the owner or operator need not begin assessment monitoring.

(2) The department may approve an alternate assessment monitoring program if the only parameters which are at or above the groundwater standards are the inorganic detection monitoring parameters listed under municipal solid waste in ch. NR 507 Appendix I Table 1.

(3) The owner or operator shall conduct an assessment monitoring program in accordance with all of the following requirements.

(a) The owner or operator shall collect and analyze assessment monitoring samples from all of the subtitle D wells at the facility. The first set of assessment monitoring samples shall be collected during the first routine monitoring event following receipt of the groundwater standard exceedance. The first set of assessment monitoring samples shall be analyzed for the parameters determined under either subd. 1. or 2. or as approved by the department in writing:

1. All of the parameters listed in ch. NR 507 Appendix II.
2. All of the parameters detected in leachate samples collected to date in accordance with s. NR 507.21(2).

(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 leachate sampling results, the owner or operator shall place the results in the operating record. Within 60 days after the end of the sampling period, the owner or operator shall submit the leachate sampling results to the department.

(c) Semiannually, the owner or operator shall sample the subtitle D wells for all of the following:

1. All ch. NR 507 Appendix II parameters which have been detected in the leachate after the effective date of this section ... [revisor inserts date].
2. All ch. NR 507 Appendix II parameters which have been detected in subtitle D wells after the effective date of this section ... [revisor inserts date].

(d) All assessment monitoring samples being analyzed for metals shall be obtained using the low-flow sampling technique.

(4) The owner or operator may submit a written request to cease the assessment monitoring program required under this section. The request shall demonstrate that 2 consecutive semi-annual sampling rounds show that all detected parameters in the groundwater samples from the subtitle D wells are at or below groundwater standards listed in ch. NR 140, Tables 1 and 2, or PALs or ACLs established in accordance with s. NR 507.27. The department may approve the cessation of assessment monitoring if the only parameters which remain above the groundwater standards are the inorganic detection parameters listed under municipal solid waste in ch. NR 507 Appendix I Table 1.

(5) If an ES is attained or exceeded at a subtitle D well and the value is confirmed, the owner or operator, in addition to s. NR 508.05 (intro.) and subs. (1) to (3), shall do all of the following:

(a) Notify the clerk of each municipality within which the landfill is located and whose boundary is within 1,200 feet of the limits of filling of any sampling result which exceeds an enforcement standard. The owner or operator shall notify the clerk within 14 days of receiving the sample result.

(b) Develop a site investigation work plan and a site investigation report in accordance with s. NR 508.04(3).

(c) Evaluate and select remedial action options and develop a report in accordance with s. NR 508.04(4).

Note: For the purpose of this chapter the department considers a value to be confirmed if a follow up field sample attains or exceeds the groundwater standard.

SECTION 189. NR 509 is created to read:

CHAPTER NR 509

INITIAL SITE REPORTS FOR LANDFILLS

NR 509.01 PURPOSE. The purpose of this chapter is to ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in this state and to outline the requirements regarding initial site reports for proposed new landfills or expansions of existing landfills.

The purpose of submitting an initial site report is to obtain a preliminary opinion from the department on the potential a proposed property has for development as a landfill and the advisability of spending additional time and funds to prepare a feasibility report. This chapter is adopted under ss. 144.43 to 144.47 and 227.11, Stats.

NR 509.02 APPLICABILITY. (1) Except as otherwise provided, this chapter governs all landfills as defined in s. 144.43(2w), Stats.

(2) This chapter does not apply to:

(a) Solid waste facilities regulated under chs. NR 502 and 503.

(b) Commercial soil borrow sources intended to be used for purposes other than to construct, operate or close a specific landfill; or to soil borrow sources obtained exclusively from an excavation within the proposed or approved limits of filling of a landfill.

(c) Hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to 690; and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

(d) The location, design, construction or operation of industrial wastewater facilities, sewerage systems and waterworks treating liquid wastes approved under s. 144.04, Stats., or permitted under ch. 147, Stats.; or to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 144.04, Stats., or permitted under ch. 147, Stats., except for facilities used for the disposal of solid waste.

NR 509.03 DEFINITIONS. The terms used in this chapter are defined in s. NR 500.03.

NR 509.04 INITIAL SITE INSPECTION. (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. NR 500.05(5) to (8).

Note: One copy of the information required by this section shall be submitted to the department's field office responsible for the area in which the facility is proposed to be located and one copy shall be submitted to the department's solid waste management section, 101 s. webster street, Madison, Wisconsin 53707.

(3) DEPARTMENT RESPONSE. The department shall conduct an initial site inspection within 22 business days after receipt of the request 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 s. NR 504.04 within 22 business days of completing the inspection. A favorable evaluation under this section does not guarantee a favorable initial site report opinion.

(4) CONTENTS OF INSPECTION REQUEST FOR A PROPOSED SOLID WASTE LANDFILL. An initial site inspection request for a proposed new landfill or an expansion of an existing landfill shall include the following:

(a) A cover letter identifying the applicant and authorized contact, type of landfill and operation being proposed, property ownership, location by quarter - quarter section and present land use.

(b) A letter from the department's bureau of endangered resources identifying the presence of critical habitat areas and state or local natural areas within one mile of the proposed landfill, in accordance with ch. NR 29.

(c) A letter from the Wisconsin state historical society identifying the presence of any historical, scientific or archaeological areas within the vicinity of the proposed landfill, in accordance with s. 44.40, Stats.

(d) An enlarged 7.5 minute USGS map or other base map having a minimum scale of 1" = 500 feet. Map scale and contour intervals shall be revised when necessary to sufficiently show relief, surface waters, floodplains, existing land use conditions and all water supply wells and residences located within one mile of the property boundaries of the proposed landfill.

(e) A preliminary identification of all potential conflicts with the locational criteria and performance standards specified in s. NR 504.04 for landfills except for s. NR 504.04(4)(d) to (f).

(5) CONTENTS OF INSPECTION REQUEST FOR A SOIL BORROW SOURCE FOR A SPECIFIC SOLID WASTE LANDFILL. 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 the following:

(a) The information listed in sub. (4)(a) to (d).

(b) A preliminary identification of all potential effects on wetlands, critical habitat areas or surface waters.

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. NR 500.05, address all requirements of this section, 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. Within 30 days after an initial site report is submitted, 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 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. A favorable opinion under this section does not guarantee a favorable feasibility determination.

(3) CONTENT. The initial site report shall identify the project title; name, address and phone number of the primary contacts including the proposed landfill's owner, operator and any consultants; present property owner; proposed landfill location by quarter-quarter section; total acreage of the property and anticipated limits of filling; proposed landfill life and design capacity; municipalities and industries to be served; anticipated waste types and characteristics; anticipated volumes of each major waste stream and any seasonal fluctuations taking into account waste reduction, reuse, recycling, composting and the recovery of energy from solid waste; anticipated cover frequency; mode of operation; and anticipated sub-base, base and final grades.

Note: Limits of filling is defined in s. NR 500.03(127).

NR 509.06 LAND USE INFORMATION. The initial site report shall include a discussion of land uses at the proposed landfill location and the surrounding area. A thorough discussion of land uses which may have an impact on the suitability of the property for waste disposal or on groundwater quality shall be included. The report shall address all areas where land use may affect or be affected by the proposed new landfill or proposed expansion to an existing landfill. At a minimum, this will be the area within one mile of the anticipated limits of filling. The discussions shall be supplemented with land use maps. At a minimum, the report shall specifically address the following items:

(1) ADJACENT LAND OWNERS. Land owners whose property is contiguous to the proposed landfill's property boundaries and all residences within 1,200 feet of the anticipated limits of filling shall be identified and located on a map. This information may be presented on a plat map. However, any changes to current ownership conditions shall be noted.

(2) LAND USE ZONING. A discussion of land use zoning, with particular attention given to areas where zoning variances will be required, where agricultural impact statements may be required, or where floodplain, conservancy, shoreland or wetland zoning is designated.

(3) DOCUMENTATION OF PRESENT LAND USES. A description of the current land uses, with particular emphasis on the discussion of known recreational, historical, archaeological, critical habitat areas 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.

(4) TRANSPORTATION AND ACCESS. The present or proposed transportation routes and access roads, including any weight restrictions, shall be delineated.

NR 509.07 REGIONAL GEOTECHNICAL INFORMATION. The initial site report shall include a discussion of the regional setting of the proposed landfill. This discussion may be limited to information available from publications such as a hydrologic investigations atlas, water supply papers, informational circulars and technical bulletins published by the Wisconsin geologic and natural history survey, the United States geological survey and the natural resources conservation service. The regional setting to be discussed is the area which may affect or be affected by the proposed landfill. At a minimum, this will be the area within one mile of the anticipated limits of filling. The discussions shall be supplemented with available regional bedrock and glacial geology maps, USGS topographic maps, NRCS soil maps and regional water table maps. Specifically, the following items shall be discussed:

(1) TOPOGRAPHY. The existing topography including predominant topographic features.

(2) HYDROLOGY. The surface water drainage patterns and significant hydrologic features such as surface waters, springs, surface water drainage basins, divides and wetlands.

(3) GEOLOGY. The origin, nature and distribution of bedrock; the origin, texture, thickness and distribution of the unconsolidated units; and the texture and classification of the surficial soils.

(4) HYDROGEOLOGY. The depth to groundwater, groundwater flow directions, groundwater divides, aquifers and identification of the aquifers used by water supply wells.

(5) WATER QUALITY. Information on groundwater and surface water quality available from the USGS, WGNHS, DNR, UW-Extension and regional planning commissions.

SECTION 190. NR 510(title) is amended to read:

NR 510(title) ~~INITIAL SITE~~ PRE-FEASIBILITY REPORTS FOR LANDFILLS

SECTION 191. NR 510.01 is amended to read:

NR 510.01 PURPOSE. The purpose of this chapter is to ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in ~~Wisconsin~~ this state and to outline ~~the~~ recommended investigations regarding ~~initial site reports~~ pre-feasibility reports for

proposed new ~~solid waste disposal facilities~~ landfills or expansions ~~to~~ of existing ~~facilities~~ landfills. The purpose of submitting ~~an initial site~~ a pre-feasibility report is to obtain ~~an~~ a revised opinion from the department on the potential a proposed property has for development as a ~~solid waste disposal facility~~ landfill and the advisability of spending additional time and funds to prepare a feasibility report. This chapter is adopted under ss. 144.43 to 144.47, and 227.11, Stats.

SECTION 192. NR 510.02(1) is amended to read:

NR 510.02(1) Except as otherwise provided, this chapter governs all ~~solid waste disposal facilities~~ landfills as defined in s. ~~144.43(5),~~ 144.43(2w), Stats., except landfills regulated under ch. NR 503, hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690 and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

SECTION 193. NR 510.04 and 510.05 are repealed and recreated to read:

NR 510.04 GENERAL SUBMITTAL REQUIREMENTS. (1) GENERAL PROVISIONS. Prior to submitting a feasibility report, an applicant may submit a pre-feasibility report for review by the department. If a pre-feasibility report is submitted, it shall address s. NR 500.05 and the requirements of this chapter.

(2) CONTENT. (a) A pre-feasibility report shall identify the project title; name, address and phone number of the primary contacts including the proposed landfill's owner, operator and any consultants; present property owner; and proposed landfill location by quarter-quarter section.

(b) The report shall identify any conflicts with the locational criteria and performance standards specified in s. NR 504.04 for landfills except for s. NR 504.04(4)(d) to (f), any other constraints on site feasibility previously identified by the department, and provide the additional information, changes in design, or other circumstances which warrant a review by the department of its initial site report opinion regarding the potential of the property for development as a landfill.

(3) DEPARTMENT RESPONSE. Using the information in the pre-feasibility report, the department shall review its initial site report opinion under s. NR 509.05(2) regarding the potential of the proposed property for development as a landfill and may, at its discretion, revise the previously issued opinion. The department shall issue a revised opinion, or confirm its previous initial site report opinion, as to whether the proposed property has potential, limited potential, or little or no potential for development as a landfill within 60 days of receipt of the pre-feasibility report. A favorable opinion under this chapter does not guarantee a favorable feasibility determination.

NR 510.05 SPECIFIC GEOTECHNICAL INFORMATION. The applicant shall perform field investigations to define the subsurface soils, depth to bedrock, type of bedrock, depth to groundwater, and groundwater flow direction at the proposed

landfill's location. The results of this investigation shall be described in the narrative section of report. All raw data collected for borings, well construction and borehole abandonment shall be submitted on forms in accordance with s. NR 507.14(5). All raw data for laboratory tests and water level measurements shall be included in the report appendix.

(1) BORINGS. Borings installed to investigate the site specific geology shall be:

(a) Extended a minimum of 25 feet below the anticipated sub-base grade. If the boring is located outside the anticipated limits of filling, the applicable sub-base grade is the elevation of the bottom of the anticipated liner system nearest to the borehole.

(b) Located in or within 300 feet of the anticipated limits of filling.

(c) Logged and samples shall be collected and retained in accordance with s. NR 507.05(2) and (3).

(d) Abandoned in accordance with ss. NR 141.25 and 507.08 if not converted to wells.

(2) WELLS. Based on existing information, observation wells installed to investigate the site-specific hydrogeology shall be:

(a) Constructed so that the water table intersects the well screen at all times during the year.

(b) Located no more than 300 feet from the anticipated limits of filling.

(c) Designed, installed, developed and documented in accordance with ch. NR 141 and ss. NR 507.06, 507.07 and 507.14. All requirements contained in s. NR 508.10 also apply. Alternative methods of well design and installation which achieve comparable results shall be approved by the department prior to well construction.

(3) 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. The professional geologist or qualified technician who is directly supervised by a professional geologist shall also visually describe and classify all geologic samples.

(4) LABORATORY AND FIELD ANALYSES. Laboratory and field analyses conducted to identify the specific geologic and hydrogeologic conditions at the proposed landfill's location shall:

(a) Include testing a minimum of one representative sample from each major soil unit encountered. Each representative sample shall be analyzed for grain-size distribution using mechanical and hydrometer methods and Atterberg limits as appropriate for the particular type of material and be classified according to the unified soil classification system.

Note: A major soil unit is defined in s. NR 500.03(138).

(b) All available groundwater or surface water quality data which have been obtained from sampling at the proposed landfill's location shall be submitted in the report. Any environmental monitoring data included in the report shall be submitted on department forms or on diskette.

Note: The department recommends than any site-specific geotechnical investigation for an initial site report or a pre-feasibility report not be initiated prior to receiving the department's initial site inspection evaluation of the proposed property. The department also recommends that any follow up studies and evaluations requested by the department in its initial site inspection evaluation to determine compliance with the locational criteria and performance standards of s. NR 504.04 be completed to the degree possible prior to submitting an initial site report or a pre-feasibility report. For example: If the department requests an archeological investigation or an endangered resources study to be completed, such information should be included in the initial site report or a pre-feasibility report. However, if the proposed landfill will have an impact on a wetland, the practicable alternative analysis required by ch. NR 103 should be submitted with the initial site report or pre-feasibility report, but the identification of the wetland functional values and the significance of the potential adverse impact upon those functional values may be submitted with either the initial site report, the pre-feasibility report or the feasibility report.

SECTION 194. NR 510.06 to 510.08 and 510.10(3) and (4) are repealed.

SECTION 195. NR 510.09 to 510.10 are renumbered 510.06 to 510.07 and NR 510.06(intro), (1), (2)(intro), (a), (c), (d), (3), 510.07(intro), (1)(title), (2) and (3) as renumbered are amended to read:

NR 510.06(intro). The results of ~~the~~ any subsurface investigations shall be presented on 24 inch x 36 inch plan sheets unless an alternative size is approved by the department, as follows:

(1) A topographic map of the area within 1,500 feet of the anticipated limits of filling shall be submitted showing the anticipated limits of filling, property boundaries, homes, buildings, ~~man-made~~ cultural features, water supply wells, and the location of soil borings and wells for the proposed landfill. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the topographic map shall also include the location of all borings and wells for the existing landfill. The base map may consist of an enlarged 7.5 minute USGS map or other map having a minimum scale of ~~one-inch equals~~ 1" = 500 feet with contour intervals sufficient to show relief.

(2)(intro) ~~Construct geologic~~ Geologic cross-sections ~~through all borings both perpendicular and parallel to the facility baseline as well as along and across transects which include major geologic and geomorphic features such as ridges, valleys and buried bedrock valleys~~ shall be constructed and submitted if more than 4 borings have been installed. For a proposed contiguous, horizontal or vertical expansion of an existing landfill all borings and wells for the existing landfill shall be included on the geologic cross-sections. ~~Construct at least one cross-section parallel to groundwater flow.~~ Where more than one interpretation can be reasonably made~~, conservative assumptions shall be used~~ when evaluating heterogeneities within the unconsolidated deposits, assume that the heterogeneities are continuous. ~~Include the~~ The following information shall be presented on the geologic cross-sections:

(a) A dashed line or question mark for inferred lithostratigraphic boundaries, a number or symbol to label major soil units ~~instead of extensive shading~~ and a key containing a description of the soil units.

(c) All boring logs, the USCS classifications and the geologic origin for each major soil unit. ~~Show the~~ The results of all lab ~~and field~~ tests shall be presented beside the boring.

(d) Well construction details shown to scale including the well screen and ~~seal length at the appropriate scale along with~~ filter pack length, the location of the upper and lower seals, and stabilized water level elevations measured on the same day. When 2 or more water table observation wells are presented on a cross-section, ~~draw~~ a line representing the water table elevation shall be drawn on the cross-section. The date the measurements were taken shall be specified in the key.

(3) ~~Present at least one~~ A water table contour map shall be submitted when 4 or more observation wells have been installed to define the site-specific hydrogeology. ~~Base the maps~~ The map shall be based on stabilized water levels recorded on the same day from ~~all~~ the observation wells installed at the ~~facility. Show all~~ proposed landfill's location and show the wells and the measured water level at each well ~~on the water table maps~~. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the water table contour map shall include the observation wells and measured water table elevations at each well for the existing landfill. The topographic map shall be used as a base map. If more than one set of water levels has been taken, ~~base~~ the water table ~~map~~ contours shall be based on the set of data which indicates the highest water table. Any observed variations in flow direction shall be discussed in the narrative of the report. Inferred contours made beyond the extent of the well field shall be shown with dashed lines.

NR 510.07(intro) ~~Analyze~~ The report shall include an analysis of the results from the ~~sub-surface investigations,~~ regional geotechnical information and land use ~~information and~~ information contained in the initial site report and from the subsurface investigations; give preliminary conclusions and recommendations on ~~facility~~ landfill development; and include a discussion of the following items:

(1)(title) LOCATIONAL CRITERIA AND PERFORMANCE STANDARDS. The potential for the ~~facility~~ proposed landfill to meet the ~~location~~ locational criteria and performance standards ~~set forth~~ in s. NR 504.04.

(2) A discussion of the geologic environment including those factors which may affect the development, design or operation of the ~~facility~~ proposed landfill.

SECTION 196. NR 510.07(3) is created to read:

NR 510.07(3) EXISTING FACILITY PERFORMANCE. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the compliance status and performance of the existing landfill shall be evaluated.

SECTION 197. NR 510.11 is repealed.

SECTION 198. NR 512.01 is amended to read:

NR 512.01 PURPOSE. The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in ~~Wisconsin~~ this state and to outline the requirements regarding feasibility reports for new ~~solid waste disposal, transportation and processing facilities~~ landfills or expansions of existing landfills. The purpose of the feasibility report is to determine whether a ~~facility~~ proposed property has potential for use ~~in disposal of solid waste~~ as a landfill and to identify any conditions which the applicant ~~must~~ shall address in the plan of operation. This chapter is adopted under ss. 144.43 to 144.47, and 227.11, Stats.

SECTION 199. NR 512.02(1) is amended to read:

NR 512.02(1) Except as otherwise provided, this chapter governs all ~~solid waste disposal facilities~~ landfills as defined in s. ~~144.43(5),~~ 144.43(2w), Stats., except landfills regulated under ch. NR 503, hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690, and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

SECTION 200. NR 512.04 is amended to read:

NR 512.04(title) INITIAL SITE REPORT. Any ~~person~~ applicant intending to establish a new ~~solid waste disposal facility~~ landfill or expand an existing ~~solid waste disposal facility~~ landfill shall ~~contact the department's district or area office as appropriate to arrange for an initial inspection for the purpose of evaluating compliance with the location and performance standards of s. NR 504.04. This inspection shall be completed~~ obtain an initial site report opinion from the department prior to ~~submittal of the~~ submitting a feasibility report.

SECTION 201. NR 512.05 is amended to read:

NR 512.05 GENERAL SUBMITTAL REQUIREMENTS. An applicant proposing to construct a new ~~solid waste disposal facility~~ landfill or expand an existing ~~solid waste disposal facility~~ landfill shall submit a feasibility report and related materials in accordance with s. NR 500.05 and this chapter~~, except as otherwise provided. The applicant shall include all pertinent information from the initial site report in the feasibility report~~. 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 ~~location~~ 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 ~~s.~~ ss. NR 504.05, 504.06, 504.07, 504.08 and 504.09 shall include an analysis that predicts whether the ~~facility~~ proposed landfill will meet or exceed the performance standards of s. NR 504.04(4)(d) regarding groundwater quality.

SECTION 202. NR 512.06(1) is amended to read:

NR 512.06(1) An applicant shall submit a written request including the standard notice developed under s. 144.44(1m)(bn), Stats., to each affected municipality for the specification of all applicable local approval requirements under s. 144.44(1m)(b), Stats. An applicant subject to s. 144.445, Stats., shall apply for all applicable local approvals specified by a municipality under s. 144.44(1m)(b), Stats., at least 120 days prior to submitting the feasibility report to the department. If the municipality either fails to respond within 15 days after the receipt of the written request from the applicant or indicates that there are no applicable local approval requirements, the applicant may submit the feasibility report 135 days after receipt by the municipality of the written request from the applicant or 120 days after receipt of the response from the municipality indicating that there are no local approval requirements, whichever occurs first. The feasibility report shall contain ~~documentation~~ a copy of all requests for the specification of applicable local approvals, responses from affected municipalities regarding any applicable local approvals, the standard notice, and follow up applications for any applicable local approvals to document that this requirement has been met.

SECTION 203. NR 512.06(2) is amended to read:

NR 512.06(2) An applicant shall submit a feasibility report to the department in accordance with s. 144.44(2), 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. 144.445(6)(b), Stats. The applicant shall notify the department of when and to whom the specified copies ~~of the feasibility report~~ were submitted.

SECTION 204. NR 512.06(3) is amended to read:

NR 512.06(3) Within 60 days after a feasibility report is submitted, the department shall determine whether or not the feasibility report is complete. ~~If the report is complete, the department shall publish a class I public notice in accordance with s. 144.44(2)(k), Stats., and issue a preliminary determination stating whether or not an environmental impact statement is required. If the report is incomplete, the department shall notify the applicant in writing and specify the information which shall be submitted before 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. If the report is incomplete, the department shall notify the applicant in writing and specify the information which 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. 144.44(2)(k), 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 ~~facility~~ proposed landfill cannot be determined without the additional information.

SECTION 205. NR 512.07 is repealed.

SECTION 206. NR 512.09(1) to (4) are repealed.

SECTION 207. NR 512.10 is repealed.

SECTION 208. NR 512.11(1)(c) to (e) are repealed.

SECTION 209. NR 512.12(2)(i) is repealed.

SECTION 210. NR 512.14 is repealed.

SECTION 211. NR 512.16(4) is repealed.

SECTION 212. NR 512.17(1)(e) and (f) are repealed.

SECTION 213. NR 512.17(2)(c) to (e) are repealed.

SECTION 214. NR 512.18(2)(e) is repealed.

SECTION 215. NR 512.18(3)(f) and note are repealed.

SECTION 216. NR 512.19(1) is repealed.

SECTION 217. NR 512.20 and NR 512.21 are repealed.

SECTION 218. NR 512.08 to 512.09, NR 512.11(1), (2), (3), (4)(a), (b), (c),

(d), (e), (f), (g), (5), NR 512.12 to NR 512.13, NR 512.15 to 512.19 are renumbered to NR 512.07 to .08, NR 512.09(1), (2), (3), (4)(a), (b), (c), (d), (e), (g), (h), (5), 512.10, 512.11, NR 512.12 to 512.18, and NR 512.07 to .08(intro), 512.09(title),(intro) (1), (a), (b), (2), (a), (3), (4) (a), (b), (e), (g), (h), (5), 512.10 (1) (a), (b), (2) (h), (3), 512.11(1), (c), (e), (g), (h), (i), (2), (c), (d), (3), (4), NR 512.12(1), (2), (3), 512.13(title),(intro), (1), (3), (4), 512.14(title),(intro), (1)(title), (a), (b), (c), (d), (2)(intro), (a), (b), 512.15(1), (2)(title),(intro), (a), (b), (c), (d), (3)(title), (a), (b), (c), (d), (e), 512.16(intro), (2)(a), (b), (c), (d), (e), (f), (3)(a), (b), (e), (4)(a), (d), (e), (f), and (5) as renumbered are amended to read.

NR 512.07 GENERAL FACILITY INFORMATION. The feasibility report shall identify the project title; name, address and phone number of the primary contacts including the ~~facility~~ proposed landfill's owner, operator and any consultants; present property owner; proposed ~~facility owner and operator; facility~~ landfill location by quarter-quarter section; total acreage of the property and proposed limits of ~~fill~~ filling; proposed ~~facility~~ landfill life, design capacity and ~~an estimated~~ date of ~~initial operation~~ closure; municipalities and industries to be served; ~~estimated~~ anticipated waste types and characteristics; ~~estimated weekly quantities~~ anticipated volumes of each major waste stream and any seasonal fluctuations taking into account waste reduction, reuse, recycling, composting and the recovery of energy from solid waste; anticipated cover frequency; mode of operation; anticipated ~~base and~~ sub-base base and final grades; ~~and~~ preliminary design concepts; need for the landfill; and the alternatives to land disposal, including any proposed waste reduction and recovery services.

NR 512.08 LAND USE INFORAMTION. The feasibility report shall ~~discuss~~ include a discussion of ~~the present and former~~ land uses at the ~~facility~~ proposed landfill location and ~~the~~ surrounding area. A Relevant land use information contained in the initial site report may be referenced in the feasibility report. However, a thorough discussion of any changes in land uses since the submittal of the initial site report which may have an impact on the suitability of the property for waste disposal or ~~affected~~ on groundwater quality shall be included. The report shall address all areas ~~that~~ where land use may affect or be affected by the proposed ~~facility~~ landfill. At a minimum, this will be the area within ~~one-half mile of the limits of filling for facilities with a design capacity of 50,000 cubic yards or less and areas within~~ one mile ~~for facilities with a design capacity greater than 50,000 cubic yards~~ of the proposed limits of filling. ~~The discussions shall be supplemented with land use maps. At a minimum specifically address the following items:~~ If the landfill owner proposes to accept municipal solid waste or other putrescible waste, the report shall include any information or bird study requested by the federal aviation administration or by the department concerning any airport whose runway end is within 5 miles of the proposed limits of filling.

NR 512.09(title) SITE-SPECIFIC GEOTECHNICAL INFORMATION.(intro) The applicant shall perform laboratory and field investigations to define the physical characteristics of the ~~facility including soils, bedrock and groundwater~~

proposed landfill's location. At a minimum these investigations shall include the requirements specified below unless an alternative geotechnical investigation program is approved by the department in writing before the geotechnical investigation program for the feasibility report is initiated. ~~The applicant shall provide supporting~~ Documentation of any alternative geotechnical investigation approved by the department and justification for any reductions to the requirements in this section shall be included in the feasibility report.

(1) ~~Borings~~ As specified in Table 1, borings sufficient to define sub-surface conditions shall be drilled both inside and outside the proposed limits of ~~waste~~ filling.

(a) At a minimum, borings shall be drilled in 10 separate locations for the first 5 or less acres of the proposed fill area. ~~Three~~ Two borings shall be drilled for each additional 5 or less acres of proposed fill area. The borings shall be located on a grid pattern ~~and such that there is a minimum of one boring in each major geomorphic feature such as ridges, lowlands and drainage swales~~. All borings shall be located in or within 300 feet of the proposed limits of ~~waste~~ filling. ~~The department may require more borings in complex hydrogeologic environments.~~

(b) Borings shall extend a minimum of 25 feet below the anticipated sub-base grade ~~or to bedrock, whichever is less. If regional information suggests that bedrock is within 100 feet of the land surface, at least one boring shall be extended into bedrock. Every attempt shall be made to locate this boring outside the proposed limits of waste filling. The boring log shall identify the lithology of the bedrock~~. If the boring is located outside the proposed limits of filling, the applicable sub-base grade is the elevation of the bottom of the proposed base liner nearest to the borehole.

(2)(intro) ~~Groundwater monitoring~~ As specified in Table 1, wells sufficient to define the hydrogeologic and groundwater quality conditions shall be installed. At a minimum, this includes:

(a) ~~Water table~~ Installing observation wells ~~shall be installed~~ to adequately define the water table surface and horizontal hydraulic gradients. At a minimum, 5 water table observation wells shall be installed for the first 5 or less acres of disposal area and one additional observation well for each additional 5 or less acres of disposal area. The observation wells shall be constructed so that ~~the screens intersect~~ the water table intersects the well screens at all times during the year ~~and attempt to locate the wells no further than 150 feet from the anticipated limits of filling. At a minimum, for the first 5 or less acres of disposal area, a piezometer shall be installed adjacent to a water table observation well at 2 separate locations to create well nests. One additional piezometer for each additional 10 or less acres of disposal area shall be installed to create additional well nests. In addition, in fine-grained soil environments, 2 well nests consisting of at least 2 piezometers shall be installed adjacent to a water table observation well for the first 5 or less acres of disposal area and one additional well nest consisting of at least 2 piezometers for each additional 10 or less acres of disposal area~~.

(3) A ~~hydrogeologist~~ professional geologist or ~~other~~ qualified ~~person~~ technician who is directly supervised by a professional geologist shall observe and direct the drilling of all borings~~,~~ and the ~~installation and development~~ installation, development and abandonment of all wells ~~and all in-field hydraulic conductivity tests~~. ~~The hydrogeologist~~ 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.

(4)(a) For each major soil unit encountered, at least 5 representative samples shall be analyzed for grain size distribution ~~by~~ using mechanical and hydrometer ~~tests~~ methods and Atterberg limits as appropriate for the particular type of material. Each representative sample shall be classified according to the unified soil classification system.

(b) Laboratory hydraulic conductivity tests shall be conducted on at least 2 representative samples from each major fine-grained soil unit. Tests shall be run on undisturbed samples when conditions allow.

(e) After each well has been properly developed, successive water level measurements shall be taken until stabilized readings are obtained. ~~Thereafter,~~ 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 ~~monitoring shall be performed until a feasibility determination is made. In addition, stabilized water level measurements shall be obtained on a quarterly basis from surface water bodies including streams, lakes, ponds, drainage ditches and wetlands located within 1,200 feet of the proposed facility. Where public or private wells are present, stabilized water level readings from these wells may be required if access can be obtained from the owner. The water level monitoring program shall continue until a feasibility determination has been issued by the department~~ measurements shall be obtained for at least 4 quarters.

(g) At least 4 rounds of baseline groundwater ~~quality sampling~~ monitoring shall be performed on all observation wells and piezometers located outside the proposed limits of ~~waste~~ filling which were installed to evaluate the proposed property in accordance with s. NR ~~508.14~~ 507.18 and submitted along with the feasibility report.

(h) The department may require other work such as groundwater modeling, pump tests, geophysical investigations, isopach maps or a fence diagram to assess the hydrogeologic conditions at the proposed facility.

(5) All soil and bedrock samples collected from the proposed property shall be retained ~~until the department issues a feasibility determination. Representative samples of all major soil units and bedrock formations shall be retained until the department issues an operating license for the facility~~ in accordance with s. NR 507.05(2) and (3).

NR 512.10(1)(a) Grain size distribution, geologic origin and classification of materials using the USCS system ~~and Muncell color chart~~.

(b) The lateral and vertical extent of each major soil unit including description of lenses or other heterogeneities and, if bedrock is encountered by borings, the strike and dip of any rock formations. Strike and dip may be determined from regional or site-specific information.

(2)(h) Horizontal and vertical hydraulic gradients, particularly between soil units of differing hydraulic conductivity and between unconsolidated deposits and bedrock.

(3) All raw data including boring logs, ~~well construction diagrams,~~ soil ~~tests and~~ 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. The department storm water control form in accordance with s. NR 512.14(1)(e) shall also be included in the appendices of the report.

NR 512.11(1) A detailed topographic survey of the proposed ~~facility~~ landfill and all areas within a distance of 1,500 feet from the proposed limits of filling. The minimum scale shall be ~~one inch~~ 1" = 200 feet with a maximum 2 foot contour interval. The contour interval selected shall be sufficiently small to clearly show surface water flow patterns within and around the ~~facility~~ proposed landfill. This plan sheet shall show the following features:

(c) ~~Homes,~~ Residences, buildings, ~~human-made features and~~ utility lines and other cultural features.

(e) Property and ~~waste boundaries~~ proposed limits of filling, including any previous fill areas.

(g) Water supply wells including any irrigation and stock ~~wells, as well as public and private water supply~~ wells.

(h) Boring, test pit and well locations for the proposed landfill.

(i) Other structures including ~~runoff~~ storm water control systems, agricultural drain tile systems, access and internal roads, and storm and sanitary sewerage systems.

(2)(intro) Cross-sections shall be constructed through all borings, both perpendicular and parallel to the ~~facility~~ proposed landfill's baseline~~, as well as along and across transects which include major geologic and geomorphic features such as ridges, valleys and buried bedrock valleys~~. For a proposed contiguous, horizontal or vertical expansion of an existing landfill the cross-sections shall be expanded to include all the previous borings for the existing landfill. At least one cross-section shall be constructed parallel to groundwater flow. Where more than one interpretation can be reasonably made~~, conservative assumptions shall be used~~ when evaluating heterogeneities within ~~the~~ unconsolidated deposits, assume that the heterogeneities are continuous. The following information and where applicable, the information required by s. NR 512.14(2)(b), shall be presented on the geologic cross-sections:

(c) Boring logs showing the USCS classification and geologic origin of each major soil unit, the results of grain size analyses, Atterberg limits~~, and lab~~ and field hydraulic conductivity tests. The data shall be correlated to the sample location.

(d) Well construction details shown to scale including the well screen and filter pack length, the location of the upper and any lower seals and stabilized water level elevations measured on the same day. Where 2 or more ~~water table~~ observation wells are presented on a cross-section, a line representing the water table shall be drawn. The date the measurements were taken shall be specified in the key.

(3) At least 2 water table contour maps shall be ~~presented~~ submitted. ~~The maps shall be based on monthly water table elevations documenting the seasonal high and low water table~~ 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, 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 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. 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.

(4) ~~Where~~ If at least 3 borings ~~to bedrock are required,~~ have been extended into bedrock, a bedrock contour map shall be prepared from specific and regional data.

NR 512.12(1) Unless otherwise approved, the physical and chemical characteristics of ~~all wastes~~ any high volume industrial waste such as a foundry process waste, papermill sludge, utility coal-ash waste, and other non-municipal waste that is anticipated to individually constitute more than 5% of the total proposed design capacity and leachates shall be analyzed and described. When more than one waste is generated, testing shall be performed on each waste stream. All leaching tests shall be done in accordance with published test procedures. Physical tests shall be done in accordance with ASTM standards or published test procedures. All testing procedures shall be documented. The proposed testing program including the leaching test method, the leaching media, the parameters to be analyzed for and the detection limits for each parameter specified should be discussed with the department prior to initiation of the work. Actual field leachate data may be substituted for chemical characterization data of ~~the waste at facilities for the disposal of industrial wastes only,~~ an industrial waste if the data are from an existing monofill that contains waste similar to that which is to be placed into the proposed landfill and if approved in writing by the department.

(2) Actual field leachate data from existing ~~facilities~~ landfills of similar size, design and waste type or an estimate of the anticipated leachate strength and quality available from ~~the~~ department files shall be included for all ~~facilities~~ landfills for the disposal of municipal solid waste.

NR 512.13(title) CONSTRAINTS ON LANDFILL DEVELOPMENT.(intro) The feasibility report shall contain a discussion of constraints for the development of the proposed ~~facility~~ landfill. This shall include:

(1)(title) LOCATIONAL CRITERIA AND PERFORMANCE STANDARDS. A demonstration that the ~~facility~~ proposed landfill will meet ~~location~~ the locational criteria and performance standards in s. NR 504.04.

(3) A discussion of materials and support services required for landfill construction and operation. These shall include leachate treatment alternatives, ~~limitations~~ identification of and a detailed evaluation of the capability of any proposed wastewater treatment plants to treat the anticipated quality and quantity of leachate, quality and quantity of acceptable materials available for landfill liner and final cap, and any specialized engineering structures to support landfilling activities.

NR 512.14(title) PROPOSED PRELIMINARY DESIGN.(intro) The feasibility report shall contain a proposed preliminary design based on conclusions outlined in the design constraints section of the feasibility report~~. This portion of the submittal shall consist of a report and preliminary engineering plans prepared~~ and in accordance with ch. NR 504. ~~A general discussion of the proposed operating procedures shall also be included.~~

(1)(title) PRELIMINARY DESIGN REPORT.

(a) Preliminary materials balance calculations~~, including sources for berms, liner,~~ for the necessary volume of clay to construct the liner and final ~~cover system, drainage blanket, topsoil, daily and intermediate cover, and any other fill needed to construct the facility~~ cap of the first phase of the landfill.

(b) Proposed methods for leachate and gas control including collection, containment and treatment. ~~The capability of the wastewater treatment plants to accept leachate shall be discussed. An identification of the wastewater treatment plants the applicant is negotiating with to accept the leachate, if the plant is not directly controlled by the applicant.~~

(c) Proposed operating procedures including the ~~method of facility development, filling sequence,access control for each phase, surface water control, screening, covering frequency as applicable and other special design features~~ general sequence of filling.

(d) A description of the proposed groundwater, leachate, surface water, gas, air, unsaturated zone and other monitoring programs to be implemented to meet the requirements of chs. NR ~~508 and~~ 140 and 507 and a sampling plan for all monitoring devices in accordance with s. NR 507.16.

(2)(intro) The preliminary engineering design shall be presented on 24 inch x

36 inch plan ~~sheets,~~ sheets. A maximum 5 foot contour interval shall be used for required drawings, unless an ~~alternative~~ alternate size or interval is approved by the department in writing~~, as follows:~~ . Plan sheets shall be prepared as follows:

(a) ~~Proposed~~ The existing conditions map shall be used to show the proposed access, ~~lateral extent~~ limits of filling, internal roads, load-out and scale facilities, associated buildings, storm water diversions, sedimentation basins, phases of facility development, sub-base and base grades, slopes and the leachate collection system including the location of any proposed leachate storage tank, lift station or sewer hook up. ~~The existing conditions map shall be used as a base map for this plan sheet.~~

(b) ~~A plan sheet showing~~ The present topography, proposed ~~base and sub-base grades,~~ sub-base, base and final grades, and the liner and final ~~cover system configuration~~ cap configurations shall be displayed on all geologic cross-sections intersecting the ~~landfill~~ proposed limits of filling.

NR 512.15(1) The feasibility report shall ~~contain~~ include a copy of the department's initial site inspection evaluation for each proposed noncommercial soil borrow source designated to be used in the construction, operation, or closure of the first phase of the landfill. The feasibility report shall also include a discussion ~~of each proposed borrow source for liner and capping purposes including the volume of acceptable material,~~ which includes the total acreage, ownership, location by quarter - quarter section, present land ~~use~~ uses, transportation ~~routes and~~ routes, any access restrictions, and travel distance from the existing or proposed ~~waste disposal facility,~~ landfill; site-specific surface water drainage patterns and significant hydrologic features such as surface waters, springs, drainage divides and wetlands; critical habitat areas and state or local natural areas; and historical or archaeological areas within and adjacent to the proposed limits of excavation of each proposed noncommercial soil borrow source designated to be used in the construction, operation, or closure of the first phase of the landfill. Clay borrow sources ~~containing~~ proposed for a liner or final cap that have less than a 5 ~~feet of~~ foot uniform thickness are approvable provided the applicant demonstrates ~~a construction~~ an excavation methodology and a documentation procedure to ensure the liner meets the requirements of s. NR ~~504.05(5) or 504.07(4)~~ 504.06(2)(a). ~~A clay enriched subsoil horizon less than 5 feet thick developed by soil forming processes over course grained parent material may not be an acceptable source of material for liner or cap construction. Specifications for acceptable material are contained in ss. NR 504.05(5) and 504.07 (4)~~ Soil obtained exclusively from an excavation within the proposed or approved limits of filling for a landfill is exempt from this section, except for sub. (2)(c) and (d).

(2)(title) FIELD AND LABORATORY INVESTIGATIONS FOR CLAY BORROW SOURCES.(intro) At a minimum, preliminary field and laboratory investigations to define the physical characteristics of ~~the proposed~~ any clay borrow ~~material~~ source designated to be used for a liner or final cap for the landfill shall include the following information ~~specified below~~ unless an alternative geotechnical investigation program is approved by the department in writing prior to performing the field and laboratory investigations. Applicants may

submit an alternative program in cases where previous information exists regarding the proposed borrow source. Documentation of any alternative geotechnical investigation approved by the department and justification for any reductions to the requirements in this subsection shall be included in the feasibility report.

(a) Ten test pits or borings for the first 5 or less acres and one test pit or boring for each additional ~~one~~ 3 or less ~~acre~~ acres shall be excavated or drilled on a uniform grid pattern across each proposed noncommercial borrow source to document the depth, lateral extent and uniformity of ~~acceptable material~~ the clay. The department recommends using test pits as the method of borrow source investigation. Logs identifying the geologic origin, testing results, USCS classification and a visual description of each major soil unit encountered shall be included.

(b) A minimum of 2 representative samples from each test pit or boring shall be ~~collected and tested~~ analyzed in the laboratory for Atterberg limits and grain size distribution to the 0.002 millimeter particle size using mechanical and hydrometer methods ~~and Atterberg limits~~. Each sample shall be classified according to the USCS.

(c) A minimum of ~~5~~ one representative ~~samples for the first 10 or less acres and one additional sample for each additional 5 or less acres~~ sample from each major soil unit shall be tested for the relationship of water content to dry density using either the modified or standard Proctor method. For uniform clay deposits, no fewer than 3 samples shall be tested. Each Proctor curve shall be developed with a minimum of 5 points. If the line of optimums method is anticipated to be used in construction then both standard and modified Proctor curves shall be developed for each representative sample.

(d) A ~~minimum of 20% of the samples~~ laboratory hydraulic conductivity test shall be conducted on each sample used to develop the Proctor curves ~~shall be used to evaluate the relationship between compaction and hydraulic conductivity. This shall be accomplished by testing the sample corresponding to each point established on the chosen Proctor curves for hydraulic conductivity~~. The samples tested shall be at or above their optimum moisture content.

(3)(title) DATA PRESENTATION FOR ALL CLAY BORROW SOURCES. The following information shall be submitted ~~with the feasibility report~~ for all noncommercial clay soil borrow sources designated to be used for the construction, operation, or closure of the landfill:

(a) The calculated volume of soil needed and the volume of acceptable ~~material based on the information obtained from the test pits or borings~~ soil available.

(b) Property boundaries and any test pit/boring locations shall be shown on a topographic map with a scale of ~~one inch~~ 1" = 500 feet. The mapped area shall extend a minimum of 500 feet beyond the proposed borrow source.

(c) An isopach map showing the thickness of acceptable ~~material~~ soil.

(d) A description of the methods to be used for separating the acceptable ~~material~~ soil from any unacceptable ~~material~~ soil.

(e) A proposal for maintaining drainage~~,~~ and sedimentation control ~~and proper abandonment of the property~~.

NR 512.16 ENVIRONMENTAL REVIEW.(intro) To aid the department in determining the need for an environmental impact report or environmental impact statement, the feasibility report shall include an environmental assessment section. This assessment shall ~~address~~ include the following items:

(2)(a) The changes in terrestrial resources. This discussion shall ~~cover~~ include the quantity of ~~material~~ soil to be excavated and the lateral extent of soil removal; the quantity and source of ~~materials~~ soils designated to be ~~imported for construction of the liner, final cover system, drainage blanket and perimeter berms~~ used in the construction, operation or closure of the landfill. ~~Any other significant terrestrial~~ All earthen modifications such as clearing and grubbing, excavation, soil placement necessary to reach the proposed sub-base grades, construction of access roads, ~~surface water drainage features and sedimentation~~ stockpiles, and storm water controls shall also be ~~outlined~~ described.

(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 ~~surface~~ storm water ~~runoff~~ 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. 30.19, Stats., and ch. NR 103 shall also be included.

(c) Buildings, treatment units, roads and other structures such as sedimentation basins and fences to be constructed in conjunction with the facility. This discussion shall include the size of the facilities and the number of miles of road to be constructed.

(d) Emissions and discharges such as dust, ~~diesel~~ engine exhaust, odors, noise, gases, leachate, ~~surface~~ storm water ~~runoff~~ and collected groundwater associated with ~~facility~~ landfill preparation, construction, operation, closure and ~~following~~ post-closure of the ~~facility~~ landfill.

(e) Other changes anticipated with ~~facility~~ landfill development.

(f) Maps, plans and other descriptive material to clarify the discussion such as a county map showing the general area of the project, a map of the proposed service area, a USGS topographic map, a plat map, zoning map, county wetlands map, soils map and a ~~facility~~ landfill development plan.

(3)(a) A description of the physical environment including the regional and local topography, geology, surface ~~water~~ waters and associated drainage features, hydrogeologic conditions, air, wetlands and ~~earth~~ designated soil

borrow sources ~~as well as an evaluation of the groundwater quality data and overall performance of any existing solid waste facility~~.

(b) The dominant aquatic and terrestrial plant and animal species and habitats found in the area including any threatened or endangered species and amount, type and hydraulic value of wetlands.

(e) Other special resources such as archaeological, historical, state or local natural areas, and prime agricultural lands.

(4)(a) The physical impacts which would be associated with ~~facility~~ landfill design, construction and operation, including air quality, windblown paper and dust and visual impacts~~, if applicable~~.

(d) The social and economic impacts to local residents and cultural groups and the communities and industries served by the ~~facility~~ landfill such as effects on taxes, traffic and roads, noise, consistency with local planning and zoning.

(e) Other special resources such as archaeological, historical, state or local natural areas and prime agricultural lands.

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

(5) Identify, describe and discuss feasible alternatives including taking no action; enlargement, reduction or modification of the project; other ~~facilities,~~ landfills, locations or methods to the proposed action and their impacts. Particular attention shall be given to alternatives which might avoid some or all adverse environmental impacts, including ~~proposed~~ planned and existing ~~solid waste disposal,~~ waste reduction and recycling, incineration, solid waste disposal, and transfer ~~and reduction~~ facilities that may serve to handle the waste expected to be disposed of at the proposed ~~facility,~~ landfill, taking into account the economics of waste collection, transportation and disposal.

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 219. NR 512.09(1)(c) to (e) are created to read:

NR 512.09(1)(c) If regional information suggests that bedrock is within 50 feet of the lowest elevation of the proposed sub-base grades, one boring shall be extended at least 5 feet into bedrock. Every attempt shall be made to locate this boring outside the proposed limits of filling. Bedrock drilling shall be performed in accordance with ch. NR 141 and s. NR 507.05.

Note: Bedrock is defined in s. NR 500.03(18).

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

(e) Borings not converted to wells shall be abandoned in accordance with ss. NR 507.08 and 141.25.

SECTION 220. NR 512.09(2)(b) to (e) are created to read:

NR 512.09(2)(b) A piezometer shall be installed adjacent to a water table observation well at 2 separate locations to create well nests for the first 5 or less acres of disposal area. One additional piezometer for each additional 10 or less acres of disposal area shall be installed to create additional well nests. For every 20 acres of disposal area at least one well nest shall be placed within the proposed limits of filling.

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

(d) All wells shall be located no more than 300 feet from the proposed limits of filling and at least half of the wells shall be located no more than 150 feet from the proposed limits of filling.

(e) All wells shall be designed, installed, developed, documented and sampled in accordance with ch. 141 and ss. NR 507.06, 507.07, 507.14 and 507.17. Alternative methods of well design and installation which achieve comparable results shall be approved by the department prior to well construction.

Note: Fine-grained soil environment is defined in s. NR 500.03(86).

Table 1

Non-Fine-Grained Soil Environments			
Piezometers	Water Table Observation Wells	Borings	Area
2	5	10	First 5 or less acres
-	1	2	Each additional 5 or less acres
1	-	-	Each additional 10 or less acres
Fine-Grained Soil Environments			
Piezometers	Water Table Observation Wells	Borings	Area
10	5	10	First 5 or less acres
2	1	2	Each additional 5 or less acres
Note: All requirements contained in s. NR 512.11 also apply.			

SECTION 221. A NOTE following NR 512.09(4)(a) is created to read:

NR 512.09(4)(a) **Note:** Major soil unit is defined in s. NR 500.03(138).

SECTION 222. NR 512.09(4)(f) is created to read:

NR 512.09(4)(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.

SECTION 223. NR 512.12(3) is created to read:

NR 512.12(3) LEACHATE GENERATION. The estimated daily volume of leachate that will be collected during operations and after closure shall be calculated. Unless otherwise approved by the department, the following rates shall be used to calculate the leachate volumes:

(a) A minimum of 6 inches per year shall be used for all unclosed areas of the proposed limits of filling for landfills that will have a composite liner and a minimum of 4 inches per year shall be used for all unclosed areas of the proposed limits of filling for landfills that will not have a composite liner.

(b) One inch per year shall be used for all closed areas of the proposed limits of filling for landfills that will have a composite cap and a minimum of 3 inches per year shall be used for all closed areas of the proposed limits of filling for landfills that will not have a composite cap.

SECTION 224. NR 512.13(4) is created to read:

NR 512.13(4) EXISTING CONDITIONS. For a proposed contiguous, horizontal or vertical expansion of an existing landfill, the following information on the compliance status and performance of the existing landfill shall be included:

(a) The discussion in the initial site report on the compliance status and performance of the existing landfill shall be referenced in the feasibility report and any changes in the compliance status and performance of the existing landfill since the submittal of the initial site report shall be addressed.

(b) If a preventive action limit or enforcement standard adopted under ss. NR 140.10 and 140.12 has been attained or exceeded at the proposed landfill location, an exemption request under s. NR 140.28 and in accordance with s. NR 507.29 shall be contained in the feasibility report.

SECTION 225. NR 512.14(1)(e) and (f) are created to read:

NR 512.14(1)(e) Proposed methods for storm water con
ch. NR 216 and visual screening. In accordance with s.
department form for storm water control shall be inclu
the feasibility report.

(f) Proposed final use.

SECTION 226. NR 512.14(2)(c) is created to read:

NR 512.14(2)(c) A plan sheet showing the proposed cl
grades.

SECTION 227. NR 512.15(3)(f) and (g) are created to re

NR 512.15(3)(f) When applicable, a proposal for aban
accordance with Wisconsin department of transportation
135.

(g) All data obtained from the testing program.

SECTION 228. NR 512.15(4) is created to read:

NR 512.15(4) DATA PRESENTATION FOR ALL NON-CLAY BORR
information shall be submitted for all noncommercial, r
sources designated to be used for the construction, op
landfill:

(a) Property boundaries shown on a topographic map w
feet. The mapped area shall extend a minimum of 500 fe
borrow source.

(b) A proposal for maintaining drainage and sediment

(c) When applicable, a proposal for abandoning the pr
with Wisconsin department of transportation specificat

Note: It may be necessary to obtain federal, state and/or local pe
from a borrow source near surface waters or wetlands. For example, s
a permit for grading or removing top soil from the bank of any navig
navigable water where the area exposed by such grading or removal wi
is the responsibility of the applicant or property owner to request
accordance with ch. NR 509 and to obtain any federal, state and/or

SECTION 229. NR 512.16(1) is created to read:

NR 512.16(1) PROJECT SUMMARY. The department's initi
letter, a brief overview of the project and a listing
authority and other relevant local, state and federal
required as well as the need for exemptions, zoning cha

NR 512.14(1)(e) Proposed methods for storm water control in accordance with ch. NR 216 and visual screening. In accordance with s. NR 512.10(3), the department form for storm water control shall be included in the appendices of the feasibility report.

(f) Proposed final use.

SECTION 226. NR 512.14(2)(c) is created to read:

NR 512.14(2)(c) A plan sheet showing the proposed closure sequence and final grades.

SECTION 227. NR 512.15(3)(f) and (g) are created to read:

NR 512.15(3)(f) When applicable, a proposal for abandoning the property in accordance with Wisconsin department of transportation specifications or ch. NR 135.

(g) All data obtained from the testing program.

SECTION 228. NR 512.15(4) is created to read:

NR 512.15(4) DATA PRESENTATION FOR ALL NON-CLAY BORROW SOURCES. The following information shall be submitted for all noncommercial, non-clay soil borrow sources designated to be used for the construction, operation or closure of the landfill:

(a) Property boundaries shown on a topographic map with a scale of 1" = 500 feet. The mapped area shall extend a minimum of 500 feet beyond the proposed borrow source.

(b) A proposal for maintaining drainage and sedimentation control.

(c) When applicable, a proposal for abandoning the property in accordance with Wisconsin department of transportation specifications or ch. NR 135.

Note: It may be necessary to obtain federal, state and/or local permits prior to excavating soil from a borrow source near surface waters or wetlands. For example, s. 30.19(1)(c), Stats., requires a permit for grading or removing top soil from the bank of any navigable stream, lake or body of navigable water where the area exposed by such grading or removal will exceed 10,000 square feet. It is the responsibility of the applicant or property owner to request an initial site inspection in accordance with ch. NR 509 and to obtain any federal, state and/or local permits that are required.

SECTION 229. NR 512.16(1) is created to read:

NR 512.16(1) PROJECT SUMMARY. The department's initial site report opinion letter, a brief overview of the project and a listing of the statutory authority and other relevant local, state and federal permits or approvals required as well as the need for exemptions, zoning changes and any other

NR 514.02(1) Except as otherwise provided, this chapter governs all ~~solid waste disposal facilities~~ landfills as defined in s. 144.43 ~~(5)~~ (2w), Stats., except small construction and demolition waste landfills regulated under ch. NR 503, hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690, and metallic mining operations as defined in s. 144.81 (5), Stats., and regulated under ch. NR 182.

SECTION 233. NR 514.04(1) is amended to read:

NR 514.04(1) No person may establish or construct a ~~facility for the land disposal of solid waste~~ landfill or expand ~~an existing land disposal facility~~ a landfill until a plan of operation has been submitted in accordance with s. NR 500.05 and this chapter and has been approved in writing by the department. No person may establish, construct or close an approved ~~facility for the land disposal of solid waste~~ 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 ~~solid waste disposal facility~~ landfill prior to the submittal of a feasibility report by that person.

SECTION 234. NR 514.04(2) is amended to read:

NR 514.04(2) All plans of operation for ~~land disposal facilities~~ landfills shall contain the complete plans and specifications necessary for ~~the~~ construction, operation, monitoring, closing and long-term care ~~of the facility~~. ~~Because these~~ These documents ~~are to~~ shall be used for the day-to-day construction, operation and closure of the ~~facility, the information must~~ landfill and shall be presented in a manner that is clear and understandable.

SECTION 235. NR 514.04(3) is amended to read:

NR 514.04(3) 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 specify the information which ~~must~~ shall be submitted before the plan may be deemed complete. The department will 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.

SECTION 236. NR 514.04(4) is amended to read:

NR 514.04(4) The department may not approve or disapprove a plan of operation until after the applicant obtains a favorable determination of feasibility for

the ~~facility~~ landfill. The department shall either approve or disapprove the plan in writing within 90 days after submission of a complete plan of operation or within 60 days after a favorable determination of feasibility, whichever is later.

SECTION 237. NR 514.04(5) is amended to read:

NR 514.04(5) ~~Any~~ Except as provided under s. NR 514.09, proposed changes to the approved plan shall be submitted to and approved by the department prior to implementation.

SECTION 238. NR 514.05(intro) is amended to read:

NR 514.05(intro) The plan of operation for all new landfills and expansions of existing landfills shall contain a set of engineering plans which are drawn ~~on standard 24 inch by 36 inch plan sheets, unless an alternative size is approved by the department,~~ in accordance with ss. NR 500.05, ~~504.05, 504.07~~ and 504.07 to 504.11, and the following requirements. Engineering plans shall be drawn on standard 24 inch by 36 inch plan sheets. If facility details cannot be shown on standard plan sheets at a 1:100 scale, the engineering plans may be drawn on 30 inch by 42 inch plan sheets. All plan sheets except the title sheet, existing conditions sheet, cross-sections and details sheets shall utilize the existing conditions sheet as a base map. For complex plans, existing conditions within the landfill area may be shown by lighter lines or may be eliminated.

SECTION 239. NR 514.05(2)(intro) is amended to read:

NR 514.05(2)(intro) An existing conditions plan shall be included consisting of a detailed topographic map of the proposed ~~facility~~ landfill and all areas within 1,500 feet of the proposed limits of filling prior to development. The minimum scale shall be ~~1 inch~~ 1" = 200 feet with a maximum 2 foot contour interval. The contour interval selected shall be sufficiently small to clearly show surface water flow patterns within and around the ~~facility~~ landfill. All elevations shall be related to USGS datum. The plan shall identify and define the following:

SECTION 240. NR 514.05(2)(b) is amended to read:

NR 514.05(2)(b) Property boundaries, the proposed landfill boundary, and the proposed limits of filling.

SECTION 241. NR 514.05(2)(c) to (k) are repealed and recreated to read:

NR 514.05(2)(c) A north arrow, landfill survey grid, a formula for converting grid locations to the state plane coordinate system, and the locations of all existing and proposed survey monuments.

(d) Residential and commercial structures and other buildings.

(e) Locations of all soil borings, all existing and abandoned groundwater monitoring wells, and all public and private water supply wells, and the general locations of all known septic system drain fields within 1,000 feet of the landfill area or within 500 feet of any monitoring well.

(f) The locations of all other landfills, demolition landfills and all other solid waste facilities for the processing, storage or composting of solid wastes.

(g) Utility lines, underground pipelines and electrical lines, access control and other constructed topographic and drainage features.

SECTION 242. NR 514.05(3) and (4) are repealed and recreated to read:

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

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

SECTION 243. NR 514.05(5) is amended to read:

NR 514.05(5) A series of phasing plan sheets shall be included to show ~~facility~~ landfill development through time. The location of peripheral features such as support buildings, access roads, drainage ditches, sedimentation basins, any other storm water management features and screening berms shall be indicated on this plan. At a minimum, a separate plan sheet shall be provided for initial ~~facility~~ construction and for each subsequent phase of development or new area where substantial construction is to be performed. These subsequent phasing plan sheets shall present the final filling surfaces in the previous phases of ~~facility~~ development; the limits of clearing, grubbing and topsoil removal; the base grades of the new phase of filling; the anticipated surface contours of soil stockpiles at the time depicted on the plan sheet; and ~~surface water drainage features.~~ storm water management features. Each plan shall include a list of construction items and quantities necessary to prepare the phase of development indicated on the plan.

SECTION 244. NR 514.05(6) to (8) are repealed and recreated to read:

NR 514.05(6) STORM WATER MANAGEMENT. Plan sheets shall be included which

depict the features to be constructed for storm water management at the time of initial construction, during phased development, and after closure of the landfill. Plan sheets shall include the locations of sediment basins, drainage ditches, auxiliary sediment traps, and the anticipated extent of cleared ground and stockpiles during each major phase of landfill development. Plan sheets shall include a list of anticipated actions and materials needed for sediment and erosion control.

(7) FINAL TOPOGRAPHY. 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 and all other penetrations of the final cover.

(8) MONITORING. A facility monitoring plan shall be included to show the location of the design management zone as determined under s. NR 140.22 and all devices for the monitoring of leachate quality and quantity, unsaturated zone water quality and flow rate, groundwater quality, storm water quality, gas production, gas migration, gas condensate and surface settlement.

SECTION 245. NR 514.05(9) is amended to read:

NR 514.05(9) A long-term care plan sheet shall be included showing the topography of the ~~facility~~ landfill following closure. This plan sheet shall list those items anticipated to be performed during the period of long-term care including the proposed schedule for monitoring and ~~facility~~ maintenance of the landfill. This information may be included on the final topography plan sheet if clarity is not compromised or reference may be made to the appropriate section of the operations manual and design report.

SECTION 246. NR 514.05(10) is repealed and recreated to read:

NR 514.05(10) CROSS-SECTIONS AND DETAILED PLAN VIEW SHEETS (a) A minimum of 2 cross-sections in each direction shall be drawn perpendicular and parallel to the facility baseline through the major dimensions of the landfill. The location of the cross-sections shall be illustrated by a reduced scale plan view on each cross-section. Each combined engineering and geologic cross-section shall show:

1. Existing grades.
2. Sub-base, base, top of leachate collection blanket grades and final grades.
3. Soil borings and monitoring wells which the section passes through or is adjacent to.
4. Soil and bedrock types. For clarity, a number or symbol shall be used to label major soil units instead of extensive shading.
5. Stabilized water table contours.
6. Leachate collection and monitoring systems.
7. Gas venting or extraction and monitoring systems.
8. Limits of refuse filling.
9. Erosion, storm water and sediment control structures.

10. Access roads and ramps on the perimeter of the disposal area and within the active fill area.
11. The filling sequence or phasing interfaces and other facility features.

(b) Cross-sections shall be included to illustrate all important construction features of the liner, final cover, lysimeters, leachate collection trenches and sumps, liner penetrations, sideslope risers, piping systems for gas and gas condensate and drainage systems for storm water.

(c) Detailed plan view sheets shall be included for piping outside the limits of filling for leachate header and drain lines, gas and condensate lines, and leachate forcemains, with notations of pipe slope and intersection elevations with appurtenances such as manholes, lift stations, collection tanks and gas blower stations.

SECTION 247. NR 514.05(11) is amended to read:

NR 514.05(11) Drawings showing details and typical sections shall be included for ~~surface water drainage~~ 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 extend through the liner; groundwater and unsaturated zone monitoring devices; and buildings ~~and signs~~. This plan sheet shall include all other construction details such as leachate and refuse containment berms between subsequent phases of development.

SECTION 248. NR 514.06(intro) is amended to read:

NR 514.06 OPERATIONS MANUAL AND DESIGN REPORT.(intro) The plan of operation for all new landfills and expansions of existing landfills shall contain an operations manual and design report ~~which,~~ which shall comply with ss. NR 500.05, 504.05 to 504.11, and, at a minimum, ~~consists of~~ shall contain the following information:

SECTION 249. NR 514.06(2) is amended to read:

NR 514.06(2) The report shall identify the ~~facility title~~ name of the landfill; ~~engineering consultants~~ the registered professional engineer who prepared the plans; ~~facility~~ landfill owner, licensee and operator; ~~the~~ location ~~of the facility~~ by quarter-quarter section~~, township, range, town and county~~; the proposed ~~area of waste fill~~ limits of filling; the ~~facility~~ anticipated life and closure date; disposal capacity; ~~waste contributors including all municipalities and major commercial and industrial customers;~~ waste tonnages and corresponding volumes, percent municipal waste versus industrial waste, anticipated geographic service area, and anticipated industrial waste types; waste types and quantities to be disposed; any exemptions requested from the department; and a list of the conditions of facility development as stated in the feasibility determination and the measures incorporated in the plan of operation to address those conditions.

SECTION 250. NR 514.06(3) is renumbered NR 514.06(13).

SECTION 251. NR 514.06(3) is created 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 are not explicitly required by state or federal regulations or the conditions of the department's feasibility approval for the landfill. This shall include base grade configuration and relationship to subsurface conditions, 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 and construction, and piping located outside of the limits of filling. In addressing each of the above design items, the report shall indicate how the anticipated waste types and characteristics influenced the chosen design.

SECTION 252. NR 514.06(4) is amended to read:

NR 514.06(4)(title) INITIAL CONSTRUCTION. The report shall ~~include a discussion of~~ discuss initial preparations and ~~facility~~ construction methods relating to clearing and grubbing, topsoil stripping and other excavations; soil storage and visual screening development; ~~drainage~~ storm water control features; 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.

SECTION 253. NR 514.06(13) and (14) are repealed.

SECTION 254. NR 514.06(5) to (11) and (12), and (15) are renumbered NR 514.06(6) to (12) and (14), and (16) and NR 514.06(6)(title), (a), (b), (7)(a), (b), (8), (9), (10)(title), (11), (13), and (14) as renumbered are amended to read.

NR 514.06(6)(title) SOIL REQUIREMENTS. (a) The report shall include a proposed testing schedule to document the placement of all general soil fill and backfill, base liner, final cover layers and all venting or drainage layers used in ~~facility~~ any phase of development or closure. ~~Construction~~ The report shall contain an explicit statement and description of testing methods if construction and documentation ~~shall be~~ are proposed to be performed other than in accordance with the requirements of ch. NR 516. The report shall include justification for any proposed changes to the testing requirements of ch. NR

516.

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

(7)(a) The report shall include a proposed monitoring program for groundwater, surface water, volumes and quality of gas~~,~~ and gas condensate, unsaturated zone ~~and~~ , leachate ~~monitoring program~~ volume and quality, and surface settlement developed in accordance with ch. NR ~~508~~ 507 and the specific requirements of the feasibility approval. The proposed monitoring program shall include a table listing frequencies of sampling, parameters to be analyzed, and a schedule for the anticipated installation or abandonment of sampling points. The table shall indicate existing and proposed sampling points and devices and the anticipated periods during which the points and devices will be monitored before landfill development, during each major phase of landfill development, and during the period of long-term care.

(b) The report shall include a listing of all groundwater elevation data collected from all groundwater sampling points subsequent to preparation of the feasibility report.

(8) The report shall describe the daily operations including a discussion of the timetable for the ~~phases~~ construction of each phase of ~~facility development~~ 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; ~~drainage~~ 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; 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 employes. ~~A listing of the backup equipment available for facility operation with names and telephone numbers where additional equipment may be obtained shall be included in this discussion. The proposed operations shall be in accordance with ch. NR 506 unless an exemption is granted by the department in writing.~~ 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.

(9) The report shall describe ~~the relationship between facility~~ landfill operations and the development of subsequent phases. This discussion shall define the critical stage of refuse disposal for each phase as it relates to the start of construction of subsequent phases. The purpose of this planning is to ensure that the scheduling of future construction takes into account the ~~short~~ length of the construction season, limitations imposed by weather and

season, and the capacity remaining in existing phases such that an orderly transition is maintained. ~~In addition, the phasing of facility~~ The report shall describe the anticipated construction in each phase for storm water management, monitoring, abandonment of fill areas, and the installation and maintenance of gas and leachate control structures ~~shall be discussed~~.

(10)(title) PHASED CLOSURE. The report shall describe landfill operations, actions taken when phases of the landfill reach waste final grades and closure of phases at waste final grades. The report shall include a discussion of the anticipated sequence of the required events for ~~facility~~ closure of the landfill and a discussion of those actions necessary to prepare the ~~facility~~ landfill for long-term care and final use.

(11) The report shall include a proposed long-term care schedule describing the procedures to be utilized for the inspection and maintenance of cover vegetation, ~~runoff~~ storm water control structures, refuse or ground surface settlement or siltation, erosion damage, gas and leachate control features, gas, leachate and groundwater monitoring, and other long-term care needs. ~~A~~ The report shall include a final use plan for the ~~facility~~ landfill ~~be outlined and discussed~~.

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

(14) The report shall include and explain all design calculations to facilitate department review and provide the necessary information on financial responsibility for ~~facility~~ closure and long-term care of the landfill as required by ss. 144.44 and 144.441, Stats., ~~including the following information:~~

~~(a) A discussion of the reasoning and logic behind the design of the major engineering features. Design features such as base grade configuration and relationships to subsurface conditions, anticipated waste types and characteristics, phases of development, traffic routing, liner design, facility monitoring, final capping and other similar design features shall be included in this discussion. Any features related to facility closure and long-term care shall also be discussed.~~

~~(b) A~~ The report shall include a discussion of all calculations, such as refuse to cover balance computations, base liner and final covering soils materials needs related to available borrow soil volumes, stockpile sizing estimates, ~~estimates of runoff,~~ required interface shear strength and shear strength of the soil materials where the interfaces evaluated include the upper and lower interfaces for all geosynthetics such as geomembranes, geotextiles, and geosynthetic clay liners, design of the storm water management system,

infiltration and leachate collection and leakage volumes ~~shall be included~~. All calculations shall be summarized with the detailed equations presented in the appendix of the report. References to the appropriate plan sheets, from which variables are obtained for these calculations, shall be included in these summaries.

SECTION 255. NR 514.06(5) is created to read:

NR 514.06(5) STORM WATER MANAGEMENT. The report shall describe storm water management at the time of initial construction, during phased development, and after closure of the landfill. The report shall include:

(a) Narrative demonstrating compliance with s. NR 504.09.

(b) Detailed description of temporary and permanent erosion and sediment control measures to be used to accomplish the concepts in s. NR 504.09(1)(b).

(c) Specifications for design of sediment basins, culverts, drainage ditches, auxiliary sediment traps, and the anticipated extent of cleared ground and stockpiles during each major phase of landfill development.

(d) A list of anticipated actions and materials needed for sediment and erosion control.

(e) A maintenance and follow-up program designed to meet the concepts in s. NR 504.09(1)(b).

(f) Schedules for the following activities: cleaning sediment basins and ditches; seeding and stabilization of stockpiles and drainage channels; and topsoiling, seeding and stabilization of disturbed areas and areas affected by erosion.

SECTION 256. NR 514.06(15) is created to read:

NR 514.06(15)(title) FINANCIAL RESPONSIBILITY ANALYSIS. A detailed analysis in accordance with ch. NR 520 shall be made of the costs associated with closure of the landfill and of performing each year of long-term care. All assumptions used in developing the cost estimates shall be listed, including sources of the cost estimates and rationale for the selected cost factors. The anticipated operating life and replacement schedule of all engineering design features shall be addressed and reflected in the cost estimates. The proposed methods of establishing proof of financial responsibility for closure as well as long-term care shall also be specified.

SECTION 257. NR 514.07 and NR 514.08 are repealed and recreated to read:

NR 514.07 MISCELLANEOUS REQUIREMENTS FOR PLANS OF OPERATION. The plan of operation for all new landfills and expansions of existing landfills shall include the following information where applicable:

(1) GEOMEMBRANE REQUIREMENTS. The plan of operation for any landfill which includes a composite liner, composite cap or utilizes a geomembrane for a liner or capping layer shall provide the following design details and specifications for the geomembrane component. The department may specify additional requirements for other geosynthetic materials used in significant structural features of the landfill.

(a) A description of the proposed geomembranes to be used in construction of the landfill, including resins and additives, physical properties, chemical resistance properties and potential suppliers.

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

(c) Construction methods and supervisory controls for preparing the surface of the topmost lift of compacted clay prior to the installation of a geomembrane. The plan of operation shall propose inspection methods and removal of coarse gravel or cobbles after rolling the topmost lift of compacted clay to achieve a smooth surface.

(d) A description of measures to be taken to store and protect all geomembranes, transport geomembrane panels from storage to the working area, and construction methods to be used to place geomembrane panels.

(e) The proposed orientation of all geomembrane panels for the landfill liner and cap in relation to slope, collection trenches, penetrations, anchor trench and phase boundaries, seaming methods and phased construction.

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

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

(h) Construction methods for placing the leachate collection system, sump backfill, and sideslope riser over the composite liner; the first 10 feet of wastes over the leachate collection system; and subsurface drain layer and rooting zone soils over the composite cap. The measures shall assure that the geomembrane is not damaged by construction of soils, placement or compaction of wastes, waste consolidation or mass movements or puncturing of the geomembrane.

(i) A construction quality control plan that will be followed by all contractors preparing the surface of the compacted clay liner, constructing the geomembrane liner and placing drainage blanket. The construction quality control plan shall include means for determining and documenting: receipt of the proper geomembrane material; acceptable subgrade and weather conditions for work to occur; seamer qualifications and procedures for trial seams; acceptability of test welds and machine settings; acceptable seaming practices; achieved seam quality and procedures for dealing with failing tests; patching; and sealing of geomembrane penetrations. 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.

(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 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.

(k) An outline of the contents of the preconstruction submittal which complies with the requirements of s. NR 516.04(5) concerning geomembrane construction and which will be prepared and submitted prior to each construction event.

(2) CODISPOSAL OF INDUSTRIAL SOLID WASTES. The plan of operation for any landfill which accepts municipal solid wastes shall describe measures to be taken for the disposal of solid wastes from industrial sources, cleanups of spills and contaminated sites, or other commercial activities. The plan of operation shall propose lists of waste categories, testing protocols and schedules, and disposal protocols. The plan of operation shall describe the format for transmitting summary information to the department.

(3) CLOSURE OF LANDFILLS WITH COMPOSITE LINERS AND COMPOSITE CAPS. The plan of operation for any landfill which accepts municipal solid wastes may propose to delay final cover placement for one or more years after attaining final waste grades in each phase of closure provided the following requirements are followed:

(a) Intermediate cover consisting of a minimum of one foot of soil shall be

placed and the area shall be seeded as portions of a phase reach waste final grades.

(b) No additional waste placement shall occur in areas which have reached waste final grades and received intermediate cover.

(c) For landfills designed with active gas extraction systems, the components of the active gas extraction system within each phase shall be installed and made operational following attainment of waste final grades within that phase. The blower, flare, driplegs, controls, condensate handling, and appurtenances of the gas extraction system shall be installed prior to or as part of the attainment of waste final grades within the first phase of waste filling.

(4) CLOSURE OF PAPERMILL SLUDGE LANDFILLS. The plan of operation for a landfill designed to accept pulp and papermill sludges or other low-strength wastes may propose that final cover placement be delayed after completing placement of the support layer in each phase of closure. The time period of the delay shall be limited to 2 years unless otherwise approved by the department. The proposal shall also justify why the delay in final cover placement is warranted.

(5) MUNICIPAL SOLID WASTE COMBUSTOR RESIDUE MANAGEMENT PLANS. The plan of operation for any landfill which proposes to accept municipal solid waste combustor residue shall include a residue management plan. The department may approve residue management plans for facilities which have approved plans which are substantially equivalent to the requirements of ss. NR 514.04 to 514.08.

(a) All residue management plans shall contain the name and location of the proposed sources and the expected volume from each source of municipal solid waste combustor residue to be accepted.

(b) All residue management plans shall establish a timetable for evaluating the results of the testing requirements of s. NR 502.13(8) and any trends in the results from previous testing periods to determine the need for any changes to the proposed landfill design or operation.

(c) The residue management plan shall include plan sheets which address the design requirements of s. NR 504.11 and include plan views, cross-sections and details as necessary to illustrate the applicable design features of the portion of the landfill which will be utilized for disposal of municipal solid waste combustor residue. Phasing plan sheets shall also be included to show development of that portion of the landfill through time.

(d) The residue management plan shall contain an operations manual and design report which describes the daily operation of the portion of the landfill to be utilized for disposal of municipal solid waste combustor residue, including a discussion of the timetable for the phases of development; waste types accepted or excluded; typical waste handling techniques and methods for handling unusual waste types; hours of operation; traffic routing; drainage and erosion control; windy, wet and cold weather disposal operations; methods for dust control; and direction of filling. Methods to maintain compliance with the requirements of

s. NR 506.15 shall also be described.

(e) The residue management plan shall propose any modifications to the groundwater, unsaturated zone and leachate monitoring program necessary to comply with the requirements of ch. NR 507.

(6) OTHER REQUIREMENTS. The plan of operation shall provide the following details and specifications, where applicable. The department may specify additional requirements.

(a) Descriptions of alternative cover materials to be used for daily or intermediate cover.

(b) Description of a 24 hour leak test for the geomembrane component of lysimeters and sumps for sideslope risers. Alternative leak detection methods, such as electrical resistivity may be proposed.

NR 514.08 CLOSURE PLANS. Closure plans may be required by the department for solid waste disposal facilities which do not have an approved plan of operation under s. 144.44(3), Stats., or which are required by order or approval to develop a closure plan, as remediation for groundwater or surface water contamination, or to control gas migration. Closure plans shall present the complete plans and engineering analysis necessary for evaluation of the design, remaining operation, monitoring, closure and post closure care of the facility. These closure plans shall address all the requirements of s. NR 506.08. The department may require that the plans address any or all of the information contained in chs. NR 504, 508, 512, 514 and 516.

SECTION 258. NR 514.09 is created to read:

NR 514.09 EXPEDITED PLAN MODIFICATIONS. (1) APPLICABILITY. (a) If requested by the owner or operator, this section applies to proposals to modify provisions in approved plans of operation relating to the following:

1. Soil daily cover.
2. Access roads within a landfill.
3. Waste filling sequence.
4. Replacement of damaged or nonfunctional features of gas extraction systems or leachate head wells that do not involve changes in design, location or materials of construction.
5. Groundwater, gas or leachate monitoring well additions.
6. Environmental sampling methods.
7. Installation or abandonment of non-required wells.
8. Self-initiated contaminant investigations.
9. Initiation of assessment monitoring.
10. Except as provided under par. (b), other modifications determined by the department to pose low potential risk of adverse impacts on public health or the environment.

(b) This section does not apply to proposals to modify approved plans of

operation which would result in any of the following:

1. Enlargement, relocation or expansion of a landfill.
2. A change in the design or construction of landfill liners or leachate collection, transfer or storage systems.
3. A change which would be less stringent than a federally-mandated requirement.

(2) PROCEDURE. A proposal to modify an approved plan of operation is deemed approved under s. 144.44(3)(c), Stats., if both of the following occur:

(a) The owner or operator submits a written proposal to the department which describes the proposed plan modification. The owner or operator shall indicate in the cover letter to the proposal which subdivision of sub. (1)(a) he or she believes the proposed plan modification falls under, and that he or she wishes for the proposal to be reviewed under the expedited process outlined in this section.

(b) Either the department does not object to the proposed modification within 30 days after receipt of the notice under par. (a), or the department withdraws its objection to the proposal. Notification by the department that it does not consider a proposed plan modification submitted under sub. (1)(a)10. to pose a low potential risk of adverse impacts on public health or the environment shall be considered to be an objection, and therefore, subject to the dispute resolution process of sub. (3).

(3) DISPUTE RESOLUTION. (a) If the department objects to a proposed modification under sub. (2), the following procedures apply:

1. Within 20 days after the department objects to the proposed modification, the owner or operator may file a request with the secretary of the department for a conference to discuss the reasonableness of the department's objection to the proposed modification.
2. The secretary may designate appropriate department personnel to confer with the owner or operator regarding the reasonableness of the objection. The designated department personnel shall include supervisory personnel who did not participate in the objection to the proposed modification.

3. The department personnel designated by the secretary shall make arrangements to confer with the owner or operator at the earliest practical time. The department shall promptly notify the owner or operator in writing whether or not the objection to the proposed modification will be withdrawn.

(b) This section does not affect in any manner any other provision of law authorizing administrative or judicial review of a department objection under this section.

SECTION 259. NR 516.01 is amended to read:

NR 516.01 PURPOSE. The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally acceptable solid waste management

procedures are practiced in ~~Wisconsin~~ this state and to outline the requirements regarding testing and construction documentation for solid waste landfills ~~and surface impoundments~~. This chapter is adopted under ss. 144.43 to 144.47, and 227.11, Stats.

SECTION 260. NR 516.02(1) is amended to read:

NR 516.02(1) Except as otherwise provided, this chapter governs all ~~solid waste disposal facilities~~ landfills as defined in s. 144.43 ~~(5)~~ (2w), Stats., except small demolition waste landfills regulated under ch. NR 503, hazardous waste facilities as defined in s. 144.61 (5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690 and metallic mining operations as defined in s. 144.81 (5), Stats., and regulated under ch. NR 182.

SECTION 261. NR 516.04(1) is repealed.

SECTION 262. NR 516.04(2) is renumbered (1) and is amended to read:

NR 516.04 (1) REPORT PREPARATION. A report documenting all aspects of construction shall be prepared for the initial construction of the ~~facility~~ landfill; the construction of all subsequent phases or portions thereof; the construction of any ~~surface~~ storm water, groundwater, leachate or gas control structures; the implementation of remedial actions; and the closure of each major disposal area. Approval of ~~the~~ a report which documents the construction of any portion of the ~~landfill~~ base of a landfill shall be obtained from the department prior to initiating disposal operations in the newly established area~~. The~~ , unless the department ~~shall review and respond to each construction documentation report~~ does not issue a determination within ~~65 business~~ 60 days after receiving a complete submittal, ~~and~~ along with the appropriate review ~~fee~~ and construction inspection fees specified in ch. NR 520.

SECTION 263. NR 516.04(2) is created to read:

NR 516.04(2) QUALITY ASSURANCE. Construction and closure of all landfills shall comply with the following:

(a) A registered professional engineer or qualified technician who is directly supervised by a professional engineer shall be continuously on-site and performing assigned quality assurance duties throughout the following: placement and testing of the clay component of the liner and cover systems, installation and testing of the geosynthetic components of liner and cover systems, all aspects of sump and sideslope riser construction or penetrations of the sidewall liner, manhole and tank installation, and placement of the drainage layer or cover soil above the geosynthetic liner. These personnel shall also be on-site to inspect the following activities after their completion: temporary and permanent erosion control measures such as ditches, fencing and sedimentation basins; subbase and leachate collection line undercut excavation and grading; clay liner surface preparation and grading, leachate,

lysimeter and gas piping prior to their being covered with soil; piping with tanks, manholes or vaults and installation of instrumentation and controls; and gas extraction well heads. The department may require by written approval that a registered professional engineer be present during other critical construction activities.

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

SECTION 264. NR 516.04(3) to (6) are created to read:

NR 516.04(3) CERTIFICATION. A certification section shall be included as the first section of any construction documentation report prepared for the construction or closure of a portion of a landfill and shall include the following:

(a) The signed certification statement contained in s. NR 500.05(4) as well as the seal of all registered professional engineers who either performed quality assurance work on the project or supervised qualified technicians who did so.

(b) A table clearly identifying each registered professional engineer and qualified technician who performed quality assurance during the construction; which aspects of construction each person provided on site quality assurance for; the number of days each was present at the landfill performing quality assurance work; and the total hours each spent at the site performing quality assurance work. The table shall also clearly identify the registered professional engineer supervising each qualified technician.

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

(d) Separate signed statements by the 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 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.

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

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

b. Connections with previously placed clay layers.

c. Preparation of leachate collection trenches, sumps, gas header trenches and any pipe penetrations through the clay component.

d. Preparation of the upper portions of the clay component of a composite-lined or composite-capped landfill for installation of the geomembrane, including smoothness of the surface, removal of rocks and other foreign objects, and repair of the clay surface due to rain, rutting or other damage.

e. Placement of soil or other materials placed over the composite liner or composite cap.

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

a. Connections with all previously placed geosynthetics.

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

c. Connections of geomembrane around leachate transfer pipes, gas extraction wells and any other penetration of the composite liner or composite cap.

d. Removal of geomembrane wrinkles which were higher than they were wide.

3. Elements of the construction relating to leachate or storm water routing, collection, storage and transportation as well as gas extraction systems. The statement shall include but not be limited to: construction of leachate collection and transfer lines, side slope risers for leachate pumping, all liner penetrations, collection tanks, manholes, lift stations, lysimeters, gas extraction system construction and leachate headwells.

(4) PRECONSTRUCTION MEETINGS. For composite-lined or composite-capped landfills, a preconstruction meeting shall be scheduled prior to the initiation of construction for each phase of construction of the geomembrane component of the liner or cap. The meeting shall be used to clarify or confirm design changes, acceptability of selected construction materials and construction concepts or practices required in the approved plan of operation or identified in the preconstruction report. At a minimum, the meeting shall include the design engineer, the appropriate department district and central office staff, the engineer or engineers responsible for quality assurance of all aspects of construction and the geomembrane installer.

(5) PRECONSTRUCTION REPORTS. A preconstruction report shall be prepared for each phase of construction of the composite liner as well as each phase of the composite cap. The department may also require a preconstruction report for each phase of construction which utilizes a geocomposite clay liner (GCL) or 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 the preconstruction meetings for the construction of the geomembrane component of

the composite liner or the composite cap. Unless otherwise specified, 2 copies shall be provided to the bureau of solid and hazardous waste management in Madison and one copy shall be provided to the appropriate department field office. The preconstruction report shall include, at a minimum, the following:

(a) Any revisions and detail diagrams incorporating all changes and instructions between the owner, the installer and the quality assurance contractor. The report shall highlight and explain any proposed changes to the information provided in the plan of operation as specified in s. NR 514.07(1)(a) and (c) to (h). If, in the department's opinion, major changes are proposed to previously approved plans, a plan modification approval will be required. The report shall indicate the proposed limits of installation and the schedule for construction.

(b) Identification of the manufacturer of the geomembrane and other geosynthetics used in construction, manufacturer qualifications, technical specifications of the resin and polymer selected and results of the manufacturer's quality control tests on the geomembranes supplied to the project. Identification of the fabricator of geotextiles and other geosynthetics used in site construction, technical specifications of the products and materials to be used, methods used to bond the materials together and to connect panels together, installation contractor, contractor qualifications and on-site supervisory staff. Description of the selected materials and source of the sideslope riser pipe, methods proposed to assemble and place the sideslope riser pipe, and measures to be taken to prevent puncture of the geomembrane below the sideslope riser pipe and protective drainage material.

(c) The results of a shear test conducted, in accordance with ASTM method D5321, on the soils and geosynthetic materials selected for use in construction of the liner system and the final cover system. The shear test results shall be used to evaluate the stability of the geomembrane component over the clay component and the drainage layers placed on the geomembrane component. If the materials to be used are the same as those that were tested for a previous construction event then the test need not be conducted again. The department may also waive testing of materials which are proposed exclusively for use on flatter portions of liners or final cover systems.

(d) A quality control plan which 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 quality assurance plan which 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.

(6) CONSTRUCTION INSPECTIONS. The department may, under s. 144.431(2)(e), Stats., inspect construction projects for the purpose of determining compliance

with ss. 144.43 to 144.47, Stats., and chs. NR 500 to 536. The district and central office staff shall be notified, by telefax, telephone or letter, at least one week prior to beginning each of the construction events specified by the department. A fee shall be paid to the department for each required inspection in accordance with s. NR 520.04(5). The inspection fees shall be paid at the time the construction documentation review fee is submitted to the department.

SECTION 265. NR 516.05(4)(b), 516.05(5), 516.06(1)(g), 516.06(2)(d), 516.07(1)(d) and 516.07(2)(e) are repealed.

SECTION 266. NR 516.05(intro),(1), (2), (3)(intro),(a) and (b), (4)(intro),(a), 516.06(1), (2)(intro),(a), (b) and (c), 516.07(1)(intro), (a), (b), (c), and (e), (2)(intro), (a), (b) and (c) are renumbered NR 516.07(intro), (1), (3), (4)(intro), (a) and (c), (5)(intro), (b), 516.05(intro), (1), (2)(intro), (a), (d), and (f), 516.06(intro), (1)(a), (b), (d), and (f), (2)(a), (f), and (g); and NR 516.05(intro), (1)(a), (b), (c), (e), (f), (2)(intro), (a), (f), 516.06(intro), (1)(a), (b), (d), (f), (2)(intro), (a), (f), (g), 516.07(title), (intro), (1)(title), (intro), (a), (b), (c), (3)(intro), (a), (b), (4)(intro), (a), (5)(intro), and (b) as renumbered are amended to read:

NR 516.05(intro) ~~Reports~~ In addition to the general information specified in s. NR 516.04(3)(d), reports documenting the construction of all new landfill areas shall contain the following minimum information:

(1)(a) A plan view documenting the constructed grades for the sub-base, sidewalls, ~~and~~ 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.

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

(c) A plan sheet documenting the constructed elevations for the liner system. This plan sheet shall contain spot elevations of the base, sidewalls and leachate collection trenches. Documentation of grades shall include spot elevations taken on a maximum 50-foot grid pattern, with leachate collection trench elevations taken every 25 linear feet. If a total station or laser

equipment is used to set elevations, the leachate collection trench elevations may be taken every 50 linear feet. The approved base grades shall be shown for the same area in a clear and legible manner. ~~A plan sheet shall also be included which shows the granular blanket depth throughout the prepared area.~~

(e) Cross-sections through the constructed area parallel and perpendicular to the base line of the facility ~~at 200-foot intervals~~. 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 ~~these~~ the cross-sections shall show actual and design sub-base and base grade contours, the top of the granular drainage blanket, leachate and groundwater pipe elevations and the actual base and sub-base contours of adjacent filled areas. The design sub-base and base grade contours do not need to be shown if there is not an observable variation from the design grades.

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

(2)(intro) A comprehensive report containing a detailed narrative describing the construction of the area in ~~chronological~~ a logical fashion shall be prepared. Particular emphasis shall be given to any deviations from the approved plan of operation and to the explicit construction methods used for all locations where leachate transfer piping exits the lined waste fill area. This report shall include the following information at a minimum:

(a) An analysis and discussion of all soil and geomembrane testing work performed. All density and moisture content testing results shall clearly indicate which Proctor curve or line of optimums is applicable to the soil being compacted. Any 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.

(f) A series of properly labeled 35 millimeter color prints documenting all major aspects of facility construction. This shall include close-up photographs of the construction process including clay liner placement, geomembrane placement, 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 prepared sub-base and the completed liner before and after granular

blanket placement.

NR 516.06(intro) ~~All~~ In addition to the requirements of s. NR 516.04(3), all construction documentation reports for the closure of landfill areas shall contain the following minimum information:

(1)(a) A plan sheet documenting the final refuse grades, including daily or intermediate cover. Documentation of grades shall include spot elevations taken on a maximum 100-foot grid after grading has been performed to establish uniform slopes. ~~Approved final refuse grades shall also be shown for the same area in a clear and legible manner.~~ Documentation of grades for landfills which primarily accept papermill sludge or other low strength wastes may be performed at the surface of the support layer, accompanied with documentation of the thickness of the support layer on a 100-foot grid and the orientation of any geosynthetics and pipe used for reinforcement, separation, filtration or drainage. For areas less than 4 acres, a 50-foot grid shall be used.

(b) A plan view drawing for each one-foot thickness of clay placed showing the locations of the various soil testing performed at each test location. Multiple plan views may be presented on a single engineering plan sheet if legibility is not compromised. ~~The plan view of the upper-most lift of clay shall also document the final clay grades on a maximum 100-foot grid. For area less than 4 acres, a 50-foot grid shall be used.~~

(f) Cross-sections through the closed area which are constructed parallel and perpendicular to the base line of the ~~facility at maximum 200 foot intervals~~ landfill. A minimum of 4 cross sections shall be submitted, 2 of which shall be in each direction. Each of ~~these~~ the cross-sections shall show all surficial and subsurface features encountered including gas extraction wells or vents, leachate lines, and other landfill structures and shall be tied into the grades of adjacent previously filled areas. At a minimum, each cross section shall show actual sub-base grades, base grades, final refuse grades, ~~final cap system configuration and grades,~~ and final topsoil grades.

(2)(intro) A comprehensive report containing a detailed narrative ~~chronologically~~ describing the closure of the area in a logical fashion shall be prepared. Particular emphasis shall be placed on any deviations from the approved plans. This report shall also include the following information at a minimum:

(a) An analysis and discussion of all soil and geomembrane testing work performed. All ~~raw data from the soil~~ density and moisture content testing ~~performed shall be included in an appendix to the closure documentation report.~~ 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 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.

(f) The ~~results of all required topsoil testing along with the~~ rates and types of fertilizer, ~~and~~ seed and mulch applied. Liming requirements shall also be included along with the actual rate of application.

(g) A series of properly labeled 35 millimeter color prints which 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, ~~leachate storage tank access, leachate loadout areas~~ gas condensate tanks and other pertinent structures.

NR 516.07(title) SOIL AND GEOMEMBRANE TESTING REQUIREMENTS.(intro) ~~Soil testing~~ Testing shall be performed during the construction and closure of any landfill areas. At a minimum, this testing shall include:

(1)(title) LINER SYSTEM AND FINAL COVER SYSTEM CONSTRUCTION.(intro) For all recompacted clay soil ~~and all clay liner and cap~~ construction the following tests shall be performed:

(a) Dry density and as-placed moisture content shall be determined on an approximate 100-foot grid pattern for each one-foot thickness of clay placed. The grid pattern shall be offset on each subsequent layer of tests. ~~At least 5 sets of tests shall be performed for each acre for every one-foot thickness of clay placed.~~ A minimum of 2 density and moisture content tests for each one-foot thickness of clay 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 or line of optimums analysis shall be developed for every 5,000 cubic yards or less of clay placed and for each major soil type utilized. At least 5 points shall be established on each curve. If a line of optimums analysis is performed, at least 2 curves shall be included for each analysis. A representative sample for every 5,000 cubic yards or less of clay placed shall be analyzed for grain size distribution through the .002 millimeter particle size and for Atterberg limits. 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 or less for every one-foot thickness of clay placement shall be retrieved and analyzed for Atterberg limits, grain size distribution through the .002 millimeter particle size, moisture content and dry density. Laboratory hydraulic conductivity tests using ~~the falling head method~~ effective stresses less than or equal to 5 psi and hydraulic gradients less than or equal to 30 shall be performed on every third undisturbed sample. The department may require that a portion of the hydraulic conductivity testing for liner documentation be performed using leachate.

(3)(intro) During placement of the ~~granular~~ leachate drainage blanket ~~material~~ over the liner or the granular drain layer in the final cover the following testing shall be performed:

(a) ~~One~~ If sand is used, one grain size distribution to the #200 sieve for each 1,000 cubic yards of material placed. For lesser volumes, a minimum of 4 samples shall be tested. ~~The department may allow a reduction in the testing frequency if a uniform gravel material is used.~~ If washed stone or gravel is used, one grain size distribution to the #200 sieve for each 5,000 cubic yards of material placed. For smaller landfills where construction of a liner or cap area involves lesser volumes, a minimum of 2 samples shall be tested.

(b) One remolded laboratory hydraulic conductivity test for each 2,500 cubic yards of sand drainage material placed. The samples shall be tested at the anticipated field density. The moisture content and density of each sample shall be recorded. The department may require that a portion of the hydraulic conductivity tests be performed using leachate. For smaller landfills where construction of a liner or cap area involves lesser volumes, a minimum of 2 samples shall be tested. ~~The department may allow a reduction in testing frequency if a uniform gravel material is used.~~ No hydraulic conductivity tests are required if washed stone or gravel is used.

(4)(intro) During placement of ~~all leachate or groundwater collection pipe bedding material,~~ leachate collection pipes, lysimeter pipes, and groundwater collection pipes, the following tests shall be performed on the backfill material:

(a) One grain size distribution to the #200 sieve for each 1000 linear feet of trench. For construction projects with combined trench lengths of less than 3000 feet, a minimum of 3 grain size analyses shall be conducted. Bedding for solid wall piping associated with transfer of leachate, groundwater or lysimeter fluids shall be tested at the same frequency but only to the #4 sieve.

(5)(title) FINAL COVER.(intro) ~~If placement of a gas venting layer is required under s. NR 504.07 (3), the following tests shall be performed.~~ During construction of the final cover system, the following tests shall be performed:

(b) One grain size distribution to the #200 sieve for each 1000 cubic yards of ~~material placed. For lesser volumes, a minimum of 4 samples shall be tested~~ gravel used for pipe bedding and drain outlets for the drain layer and toe drain.

SECTION 267. NR 516.05(1)(g), (h) and (i) are created to read:

NR 516.05(1)(g) Cross section details shall be included to illustrate all important construction features of the liner, lysimeters, leachate collection trenches and sumps, and sediment control and storm water management systems.

(h) Detail drawings shall be included for leachate header lines or drain lines located outside the limits of waste in critical areas of below-ground piping such as where several pipes cross or meet to illustrate sufficient pipe location and invert information.

(i) Additional plan sheets, patterned after those specified in pars. (a) to

(h), shall be included for those facilities designed with multiple liners, groundwater gradient control systems or other nonstandard design features.

SECTION 268. NR 516.05(2)(b) and (c) are created to read:

NR 516.05(2)(b) A table containing thicknesses of each layer in the liner system on a 100-foot grid pattern.

(c) Discussion of how the leak tests were performed on lysimeters and sideslope riser sumps and a discussion of any problems encountered and how they were resolved.

SECTION 269. NR 516.05(2)(e) is created to read:

NR 516.05(2)(e) Daily summary reports prepared by the registered professional engineer or qualified technician performing continuous quality assurance for each day that installation of geomembrane or other geosynthetics is either attempted or accomplished when constructing composite-lined sites. The reports shall specifically describe practices employed for base grade preparation and acceptance before geomembrane installation and drainage layer placement, and the following:

1. Identification and location of geomembrane panels placed, with modifications of the fabrication plan noted.
2. Identification of field seams and ends of panels, and results of all destructive and nondestructive field tests of test seams and installed seams.
3. Methods and procedural steps taken prior to field seaming of panels.
4. Identification of wrinkles that were large enough to double over and were cut out and repaired.
5. Identification of repairs and destructive samples and the results of the nondestructive testing of those repairs.
6. Amount and location of geotextile and other geosynthetics used in construction of the liner.
7. Identification of the sources and product information for manufactured items used in site construction including geosynthetics. This shall include the identification of all solvents and other sealants used in pipe construction.
8. Weather conditions and constraints.

SECTION 270. NR 516.06(1)(c) is created to read:

NR 516.06(1)(c) A plan view drawing showing the location of all geomembrane tests, geomembrane panel layout, geomembrane patches and seam repairs, and geomembrane destructive samples.

SECTION 271. NR 516.06(1)(e) is created to read:

NR 516.06(1)(e) A plan sheet documenting the gas and condensate transfer

piping layout, top of header pipe elevation at each gas extraction well, at all major changes in slope and at the driplegs and the condensate tank, and the location of the anti-seep collar around pipes exiting the waste.

SECTION 272. NR 516.06(1)(g) to (i) are created to read:

NR 516.06(1)(g) Detail drawings, plan view and cross-section, of typical gas extraction wells or gas vents, bedding and assembly of the lateral and header pipes, header pipe joining details, header pipe exiting the site, valves, driplegs, manholes, lift stations, collection tanks, and blower building and flare.

(h) Cross section details shall be included to illustrate all important construction features of the final cover, drainage systems for gas condensate, and sediment control and storm water management structures.

(i) Detail drawings shall be included for gas header and gas condensate drain lines outside the limits of waste in critical areas of below-ground piping such as where several pipes cross or meet to illustrate sufficient pipe location and invert information.

SECTION 273. NR 516.06(2)(b) to (e) are created to read:

NR 516.06(2)(b) A table containing thicknesses of each layer in the cover system on a 100-foot grid pattern. When determining soil thickness by using surveying information, the table shall contain elevations before and after soil layer placement on the 100-foot grid. For areas less than 4 acres, a 50-foot grid shall be used. As an alternative to the survey method, soil thickness shall be controlled using settlement plates and grade stakes, and clay thickness shall be established on a 100-foot grid using auger borings. Boreholes shall be backfilled with a soil-bentonite mix such that the in-place permeability of the backfilled material is equal to or less than the surrounding clay cap.

(c) When the auger method is used to determine soil layer thicknesses, a discussion of how the auger boreholes were backfilled and the materials used.

(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.

(e) Daily summary reports shall be prepared for each day that installation of geomembrane or other geosynthetics is either attempted or accomplished for composite-capped landfills and shall contain the information required in s. NR 516.05(2)(c).

SECTION 274. NR 516.07(2) is created to read:

NR 516.07(2) GEOMEMBRANE. For all geomembrane installations the following testing shall be performed. The testing shall be performed by the quality assurance engineer or another laboratory not affiliated with the quality control testing.

(a) Conformance sampling and testing shall be conducted on geomembrane materials delivered on site and used in construction. Sampling shall be conducted by the quality assurance engineer or qualified technician.

1. Geomembrane thickness shall be measured at the facility in a minimum of 5 places per roll to ensure that the material delivered meets the approved specifications.
2. Geomembrane tensile properties shall be tested at a minimum of one test per 100,000 ft^2 of geomembrane installed and a minimum of one test on rolls from each batch of resin used to manufacture rolls delivered on site. Tensile properties shall include strength and elongation in yield and break. If the selected resin does not exhibit a distinct yield point, tensile properties shall include strength and elongation in break.
3. Geomembrane density and melt index of the polymer shall be tested at a rate of one test per 100,000 ft^2 of geomembrane installed and a minimum of one test on rolls from each batch of resin used to manufacture rolls delivered on site.
4. Geomembrane environmental stress cracking resistance documentation shall be provided which shows that the manufacturer performed a minimum of one test for each batch of resin used to manufacture rolls delivered on site.

(b) Pre-qualification tests for geomembrane fusion welding machines shall be conducted by a minimum of 2 pre-qualification seams run per welding machine at the start up of each day by each seaming technician performing geomembrane welding, with additional test runs following work interruptions, weather changes or as directed by the quality assurance engineer or qualified technician. At start up, extrusion welding machine performance shall be verified by a minimum of 2 test seams per day per machine with additional testing as directed by the quality assurance engineer or qualified technician. A portion of each pre-qualification specimen shall be tested in the field for acceptable tensile strength. Test results shall be collated for documentation along with notes on date, ambient temperature, technician and seaming machine used to make the seam, and results of field tests.

(c) Constructed geomembrane seam testing and sampling shall be completed by or observed by the quality assurance engineer or qualified technician.

1. Nondestructive field seam testing shall be performed on all seams of geomembrane attached by welding or by mechanical attachments to other geomembrane sheet, plastic plate and pipe penetrations.
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. 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.
3. Destructive samples shall be taken from at least one end of each fusion

weld greater than 100 feet long and tested. Samples shall be subjected to a minimum of one field test each in shear and peel mode.

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. Geomembrane samples shall be prepared for field analyses by use of templates and cutting tools that prepare uniformly sized samples.

SECTION 275. NR 516.07(4)(b) is created to read:

NR 516.07(4)(b) One grain size distribution to the #200 sieve for each 500 cubic yards of drainage material placed in collection sumps.

SECTION 276. NR 516.07(5)(a) is created to read:

NR 516.07(5)(a) Thickness of a support layer in the final cover for landfills which accept primarily papermill sludge or other low strength wastes on a 100-foot grid. The source and composition of the support layer shall be documented by a description of the materials used in the support layer.

SECTION 277. NR 516.07(5)(c) is created to read:

NR 516.07(5)(c) The department may require testing of samples of geotextiles, geocomposite drains or other geosynthetic materials used in construction of the final cover system.

SECTION 278. Chapter NR 518 (title) is amended to read:

Chapter NR 518 (title)

~~LAND SPREADING~~ LANDSPREADING OF SOLID WASTE

SECTION 279. NR 518.01 is amended to read:

NR 518.01 PURPOSE. The purpose of this chapter is to help ensure that efficient, nuisance-free and environmentally acceptable solid waste management procedures are practiced in ~~Wisconsin~~ this state and to outline the requirements regarding ~~land spreading~~ landspreading of solid waste. This chapter is adopted under ss. 144.43 to 144.47, and 227.11, Stats.

SECTION 280. NR 518.02(1) is amended to read:

NR 518.02(1) Except as otherwise provided, this chapter governs all solid waste ~~land spreading~~ landspreading facilities ~~as defined in s. NR 500.03~~, except hazardous waste facilities as defined in s. 144.61(5m), Stats., and regulated under chs. NR 600 to ~~685~~ 690, and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

SECTION 281. NR 518.04(intro) is amended to read:

NR 518.04 EXEMPTIONS.(intro) No person may operate or maintain a solid waste ~~land spreading~~ landspreading facility unless the person has obtained written approval from the department under s. NR 518.06, except as otherwise provided in this section.

SECTION 282. NR 518.04(1) is amended to read:

NR 518.04(1) The following ~~land spreading~~ landspreading facilities are exempt from the requirements of this chapter provided the solid waste or solid waste derived product is applied as a soil conditioner or fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner.

SECTION 283. NR 518.04(1)(a) is amended to read:

NR 518.04(1)(a) Facilities used for the ~~land spreading~~ landspreading of nonhazardous solid waste from a single family or household, a member of which is the owner, occupant or lessee of the property used for solid waste disposal.

SECTION 284. NR 518.04(1)(f) is amended to read:

NR 518.04(1)(f) Facilities used for the ~~land spreading~~ landspreading of whey.

SECTION 285. NR 518.04(1)(g) is amended to read:

NR 518(1)(g) Facilities used for the ~~land spreading~~ landspreading of vegetable waste from canned, frozen or preserved fruit and vegetable processing operations.

SECTION 286. NR 518.04(1)(h) is renumbered NR 518.04(1)(i) and as renumbered is amended to read:

NR 518.04(1)(i) Facilities used for the ~~land spreading~~ landspreading of composted leaves, grass, brush, vegetable food waste and other similar composted vegetable matter.

SECTION 287. NR 518.04(1)(h) is created to read:

NR 518.04(1)(h) Facilities used for the landspreading of yard waste.

SECTION 288. NR 518.04(1)(j) and (k) are created to read:

NR 518.04(1)(j) Facilities used for the landspreading of lime sludges from papermills which were being landspread prior to the effective date of this rule ... [revisor inserts date].

(k) Facilities used for the disposal of soil contaminated only with agricultural chemicals regulated by the department of agriculture, trade and consumer protection under s. 94.73, Stats.

SECTION 289. NR 518.04(3)(intro) is amended to read:

NR 518.04(3)(intro) Facilities used for the ~~land spreading~~ landspreading of lime sludges from papermills or water supply treatment facilities are exempt from the requirements of this chapter provided that the proposal is reviewed and approved by the department and the material meets the following requirements. This ~~section~~ subsection does not apply to lime sludges from papermills which were being landspread prior to ~~January 1, 1987~~ the effective date of this rule ... [revisor inserts date].

SECTION 290. A NOTE following NR 518.04(3)(c) is created to read:

NR 518.04(3)(c) **Note:** Lime sludges from papermills which were being landspread prior to the effective date of this rule ... [revisor inserts date] are exempt under sub.(1)(j).

SECTION 291. NR 518.04(4)(intro) is amended to read:

NR 518.04(4)(intro) Facilities used exclusively for the ~~land spreading~~ landspreading of nonhazardous industrial sludges are exempt from the requirements of this chapter provided that the material is:

SECTION 292. NR 518.04(4)(c) is amended to read:

NR 518.04(4)(c) Generated at an industrial wastewater treatment facility and the ~~land spreading~~ landspreading facility has been approved or permitted under ch. NR 214, and

SECTION 293. NR 518.04(5)(title) and (intro) is amended to read:

NR 518.04(5)(title) COAL ASH.(intro) Facilities used for the landspreading of ~~wood or~~ coal ash or ash produced by burning coal with other fuels are exempt from the requirements of this chapter provided that the proposal is reviewed and approved by the department and the material is:

SECTION 294. NR 518.04(6) is renumbered NR 518.04(7) and NR 518.04(7) as renumbered is amended to read:

NR 518.04(7) Facilities for the ~~land spreading~~ landspreading of other wastes such as fish or the remains of butchered animals may be exempted from the requirements of this chapter provided that the department approves the proposal in writing, the facility is operated and maintained in a safe, nuisance-free manner and the following requirements are met:

SECTION 295. NR 518.04(6) is created to read:

NR 518.04(6) WOOD ASH. (a) Facilities used for the landspreading of wood ash from the combustion of untreated wood with no additives, preservatives or other alterations other than kiln drying are exempt from the requirements of this chapter provided that storage, handling, transportation and landspreading follow best management practices to minimize uncontrolled dispersion by wind and water and provided that the following requirements are met by those responsible for landspreading activities or the wood ash generator:

Note: The term "facilities" used in this subsection means the land upon which wood ash is applied. NR 500.08(5)(c)1. exempts wood ash storage, handling, transportation and landspreading activities for small quantity wood ash generators. NR 500.08(5)(c)2. exempts wood ash storage, handling and transportation activites when wood ash is managed in accordance with this subsection.

1. An initial bulk chemical analysis shall be performed on a representative sample of wood ash to determine the composition and neutralizing index. Testing shall be performed by the generator or generator's designee in accordance with a department approved testing procedure. The department may limit landspreading based on the level of contaminants found in this testing procedure.
2. Landspreading shall be for the purpose of beneficially using the wood ash for soil pH adjustment or nutrient addition using accepted agricultural practices.
3. Maximum one time application rates shall be limited to 15 dry tons per acre and a total cumulative application limited to 50 dry tons per acre.

Note: The department recommends the wood ash application rate be adjusted to target soil pH to promote crop yields.

4. Wood ash which is top dressed may not be landspread in the following areas:
a. Within 100 feet of navigable bodies of water, such as streams or ponds, a wetland or a floodplain.
b. Within 1,000 feet of public water supply wells or 200 feet of private water supply wells.
c. Witin 200 feet of residences unless written consent is obtained from the residents.
d. Within 25 feet of public roads.
e. Within 25 feet of intermittent streams, drainage ways, roads ditches, surface tile inlets or other areas which concentrate runoff.
f. On any fields with slopes greater than 6% unless the land is in a soil conservation management plan. For land in a soil conservation management plan,

wood ash may not be spread on fields with slopes greater than 12%.

g. On frozen ground.

5. Records shall be maintained for a period of 5 years by the wood ash generator of the quantities produced, the name and address of the person to whom the ash was distributed and the results of the initial bulk analysis and the results of other routine testing, if applicable. The wood ash generator or generator's designee shall inform those responsible for landspreading of the requirements of subds. 3. and 4. Those responsible for landspreading wood ash shall keep records of the location and amount of wood ash applied.

(b) Facilities used for the landspreading of ash derived from the combustion of wood containing additives such as waxes used as marking crayons, end coatings or adhesives used for fingerjointing, edgegluing or face laminating are exempt from the requirements of this chapter provided that the requirements of this paragraph are met and all additives are identified using material safety data sheets. Prior to commencing landspreading under this paragraph, a report shall be provided by the genrator or generator's designee to the department regional office with an initial request including a description of wood fuels and material safety data sheets for additives and an inital characterization of the ash. Upon approval of the department or if the department does not repsond within 60 days after receipt of the report, facilities used for landspreading under this paragraph are exempt from the requirements of this chapter provided the generator or those responsible for landspreading activites meet the requirements in par. (a) and the following:

1. Bulk chemical analysis shall be performed annually from a monthly composited sample of wood ash to determine the compositon and neutralizin index. Testing shall be performed by the generator or generator's designee in accordance with a department approved testing procedure. The department may limit landspreading based on the level of contaminants found in this testing procedure.

2. An annual report shall be submitted by the wood ash generator or generator's designee to the department regional office including the estimated volume of wood ash produced annually and the total quantity landspread.

(c) Facilities used for the landspreading of wood ash derived from the combustion of fuels other than those described in par. (a) or (b) are not exempt under this subsection.

SECTION 296. NR 518.05(1) is amended to read:

NR 518.05(1) An applicant submitting a ~~land spreading~~ landspreading plan shall demonstrate to the department that the proposed facility will comply with all of the location and performance standards of this section unless an exemption is granted.

SECTION 297. NR 518.05(3)(intro) is amended to read:

NR 518.05(3)(intro) No person may establish, construct, operate, maintain or permit the use of property as a ~~land spreading~~ landspreading facility within

the following areas:

SECTION 298. NR 518.05(4)(intro) is amended to read:

NR 518.05(4)(intro) No person may establish, construct, operate, maintain or permit the use of property as a ~~land spreading~~ landspreading facility within an area where there is a reasonable probability that the facility will cause:

SECTION 299. NR 518.06(title) and (intro) is amended to read:

NR 518.06(title) SOLID WASTE LANDSPREADING PLAN.(intro) No person may establish, construct, operate or maintain a solid waste ~~land spreading~~ landspreading facility or expand an existing facility without first obtaining written department approval ~~from the department~~ of a solid waste ~~land spreading~~ landspreading plan as provided in this section. Specific requirements of this section may be waived by the department based on a review of the material characteristics.

SECTION 300. NR 518.06(1)(intro) is amended to read:

NR 518.06(1)(intro) The ~~land spreading~~ landspreading plan shall include a detailed description and analysis of each waste type proposed to be spread at a ~~land spreading~~ landspreading facility. Unless otherwise approved by the department in writing, data on waste types shall include, at a minimum, the following information:

SECTION 301. NR 518.06(1)(b) is amended to read:

NR 518.06(1)(b) Waste pretreatment or waste processing techniques utilized prior to ~~land spreading~~ landspreading.

SECTION 302. NR 518.06(1)(e) to (l) are repealed and recreated to read:

NR 518.06(1)(e) Analysis of the waste material for the following parameters. The limit of detection and the limit of quantitation shall be reported with the sample results. If a substance is detected below the limit of quantitation, the detected value with the appropriate qualifier shall be reported.

1. pH.
2. Nutrient content including Kjeldahl-nitrogen, ammonia-nitrogen, nitrate and nitrate-nitrogen, phosphorous and potassium.
3. Salt content including chloride, fluoride and sulfate.
4. Biological populations including total coliform, fecal coliform and any virus present in the waste material.
5. Metals content including aluminum, barium, boron, calcium, copper, iron, manganese, magnesium, sodium, strontium and zinc.

6. A bulk chemical analysis for additional analytes may be required by the department based on the information provided in pars. (a) to (d).

(f) Based on the information provided in pars. (a) to (e), the department may require that the waste material, the landspreading site soil and a mixture of waste material and soil be leach tested for those parameters listed in subds. 1. to 3. This analysis shall use limits of detection which are at or below the preventive action limits established in ch. NR 140. If no preventive action limit exists, the limits of detection shall be the lowest level achievable using approved methods. The limit of detection and the limit of quantitation shall be reported with the sample results. If a substance is detected below the limit of quantitation, the detected value with the appropriate qualifier shall be reported. The leach tests performed on the mixture of waste material and soil shall represent the anticipated field conditions.

1. All priority pollutants as identified by the U.S. environmental protection agency.
2. Any chemicals identified in par. (a) which have the potential to adversely affect the environment.
3. Metals including aluminum, barium, boron, calcium, copper, iron, manganese, magnesium, sodium, strontium and zinc.

SECTION 303. NR 518.06(2)(intro) is amended to read:

NR 518.06(2)(intro) An assessment and analysis of data including conclusions drawn concerning the potential benefits and adverse effects of the ~~land spreading~~ landspreading program shall be included. This assessment shall include information showing that the waste has value as a soil conditioner or fertilizer or will not cause a detrimental effect to public health, welfare or the environment. At a minimum, the following information shall be submitted:

SECTION 304. NR 518.06(2)(c) is amended to read:

NR 518.06(2)(c) Successful completion of an approved experimental solid waste ~~land spreading~~ landspreading program.

SECTION 305. NR 518.06(3)(intro) is amended to read:

NR 518.06(3) FACILITY CHARACTERISTICS.(intro) Information on the characteristics of the facilities to be used for the ~~land spreading~~ landspreading program shall include, at a minimum, the following:

SECTION 306. NR 518.06(3)(e) is amended to read:

NR 518.06(3)(e) An identification of all homes and private wells located within ~~PN~~ 1/4 mile of the facility.

SECTION 307. NR 518.06(4)(a) is amended to read:

NR 518.06(4)(a) Provisions for interim waste storage and disposal when normal ~~land spreading~~ landspreading facilities are unavailable or inaccessible including the type of storage or disposal facility, the location and capacity of the facility, construction details, any property interest or contractual agreement allowing use of the facility, future anticipated use of the facility and an evaluation of the environmental effects resulting from use of the facility.

SECTION 308. NR 518.07(1)(title) and (intro) is amended to read:

NR 518.07(title) LANDSPREADING OPERATION AND MONITORING.(intro) (1) No person may operate or maintain a solid waste ~~land spreading~~ landspreading facility except in accordance with any solid waste ~~land spreading~~ landspreading plan approval issued by the department and the following minimum requirements:

SECTION 309. NR 518.07(1)(b) is amended to read:

NR 518.07(1)(b) Depending on the type of operation to be conducted, solid waste materials shall be plowed, disked or otherwise incorporated into the surface soil layer at appropriate intervals as specified in the solid waste ~~land spreading~~ landspreading plan to minimize storm water runoff, surface leaching and to control objectionable odors. A vegetative buffer strip shall be maintained between any navigable water and the application area.

SECTION 310. NR 518.07(1)(e) and (f) are amended to read:

NR 518.07(1)(e) Waste materials with significant pathogen bacteria content shall be properly stabilized prior to ~~land spreading~~ landspreading.

(f) Food chain crops grown on solid waste ~~land spreading~~ landspreading facilities which have received waste applications containing pesticides or persistent organic materials may not be marketed or used for human or animal consumption unless the crops meet all applicable contaminant levels as established by the United States food and drug administration or the state of Wisconsin.

SECTION 311. NR 518.07(2)(intro) is amended to read:

NR 518.07(2)(intro) The owner or operator of a solid waste ~~land spreading~~ landspreading facility with an approved solid waste ~~land spreading~~ landspreading plan shall submit monitoring reports to the department on a frequency specified in the ~~land spreading~~ landspreading plan approval. The report shall include the following information for each facility utilized during the preceding reporting period:

SECTION 312. NR 518.07(2)(f) is amended to read:

NR 518.07(2)(f) The department may require monitoring as part of the ~~land spreading~~ 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.

SECTION 313. NR 518.07(2)(h) is amended to read:

NR 518.07(2)(h) A description of any action not in conformance with the approved ~~land spreading~~ landspreading plan.

SECTION 314. NR 518.08(title) and (intro) is amended to read:

NR 518.08(title) CLOSURE OF LANDSPREADING FACILITIES.(intro) The owner or operator of a ~~land spreading~~ landspreading facility, or any person who permits the use of property for such purpose, shall accomplish closure, maintenance and long-term care of the facility in accordance with any solid waste ~~land spreading~~ landspreading plan approval issued by the department and with the following minimum practices~~.~~ :

SECTION 315. NR 518.08(1)(intro) is amended to read:

NR 518.08(1)(intro) At least 120 days prior to the closing of a solid waste ~~land spreading~~ landspreading facility, the owner or operator shall notify the department, in writing, of the intent to close the facility. The department will review the notice of intent to close the facility and shall approve or disapprove in writing the proposed closure procedures. The department may require additional information, or may require additional closure, maintenance or long-term care procedures to be implemented to insure proper closure of the facility. This notice shall include the following information:

SECTION 316. NR 518.08(1)(a) is amended to read:

NR 518.08(1)(a) The proposed final date by which all solid waste disposal or ~~land spreading~~ landspreading operations will be terminated.

SECTION 317. NR 518.08(1)(b) is amended to read:

NR 518.08(1)(b) The current waste types, sources and volumes of solid wastes being ~~land spread~~ landspread at the facility.

SECTION 318. NR 518.08(1)(g) is amended to read:

NR 518.08(1)(g) The proposed monitoring and long-term care procedures to be implemented following closure of the facility. These procedures shall be in

accordance with the approved solid waste ~~land spreading~~ landspreading plan and any modifications to the plan.

SECTION 319. NR 518.08(1)(h) is amended to read:

NR 518.08(1)(h) The alternate licensed or approved facilities to be utilized for waste disposal or ~~land spreading~~ landspreading purposes following closure of the facility.

SECTION 320. NR 518.08(2) is amended to read:

NR 518.08(2) No person may deposit any solid waste materials at a closed facility without prior written approval from the department. Within 90 days ~~of~~ after the final closure date of a facility, all closure work shall be completely and finally performed in accordance with this section. Final closure of a ~~land spreading~~ landspreading facility shall include, but is not limited to:

SECTION 321. NR 518.08(2)(a) is amended to read:

NR 518.08(2)(a) Discing, plowing or otherwise incorporating all deposited solid waste materials into the surface soil layers, or covering all ~~land spreading~~ landspreading areas with an adequate thickness of final earth cover material.

SECTION 322. NR 518.09 is amended to read:

NR 518.09 LICENSING. ~~Land spreading~~ Landspreading facilities which are approved under this chapter are exempt from the licensing requirements of s. 144.44, Stats.

SECTION 323. NR 518.10 is repealed.

SECTION 324. NR 518.11 is renumbered to NR 518.10 and is amended to read:

NR 518.10 PROOF OF FACILITY REGISTRY. ~~The~~ Unless the department grants an exemption in writing, the owner or operator shall submit proof that a notation of the existence of the facility has been recorded in the office of the register of deeds in each county in which a portion of the facility is located.

SECTION 325. NR 520.02(intro) is amended to read:

NR 520.02(intro) (1) Except as otherwise provided, this chapter governs all solid waste facilities as defined by s. 144.43(5), Stats., except hazardous waste facilities as defined by s. 144.61(5m), Stats., and regulated under chs.

NR 600 to ~~685~~ 690 and metallic mining operations as defined in s. 144.81(5), Stats., and regulated under ch. NR 182.

SECTION 326. NR 520.04(1)(intro) is amended to read:

NR 520.04(1)(intro) No person may operate or maintain a solid waste facility without an operating license from the department unless an exemption is granted under ~~s.~~ ss. NR 500.08, 502.05, 502.06, 502.07, 502.08, 502.09, 502.12 and 502.13. The license period shall be for one year.

SECTION 327. NR 520.04(1)(a) to (c) are amended to read:

NR 520.04(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 shall submit the appropriate fees as shown in Table ~~1~~ 2 or Table ~~2~~ 3, ~~"Fee Schedule",~~ whichever is applicable.

(b) ~~The~~ Each year, the department will mail renewal application forms to ~~renewal applicants~~ existing license holders. ~~Application for renewal of a solid waste disposal license shall be submitted to the department.~~ Applicants failing to submit the relicensing application to the department within the specified time shall pay a late processing fee equal to 50% of the renewal fee or $150.00, whichever is less, in addition to the relicensing fee.

(c) Application for an operating license shall be submitted on forms supplied by the department and shall be accompanied by the appropriate fees as shown in Table ~~1~~ 2 or Table ~~2~~ 3, ~~"Fee Schedule",~~ whichever is applicable.

SECTION 328. NR 520.04(1m) is created to read:

NR 520.04(1m) TEMPORARY LICENSE AND SURCHARGE. (a) Notwithstanding sub.(1) and Table 2 and Table 3, the license period shall be 2 years during the period from October 1, 1996 to September 30, 1998, and the license fee for that period shall be twice the appropriate amount indicated in Table 2 and Table 3.

(b) 1. In addition to the license fee specified in par. (a), owners or operators of landfills shall pay a temporary license fee surcharge 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. The quarterly reporting periods shall begin on the effective date of this rule ... [revisor inserts date] and shall end at the end of each successive 3 month period.

2. The amount of the temporary surcharge payable under subd. 1. shall be determined by multiplying the number of tons or equivalent volume of solid waste disposed of during each quarterly reporting period by 10¢ per ton.

3. Owners or operators of landfills shall submit quarterly reports on forms supplied by the department accompanied by the amount of the temporary surcharge

calculated under this section within 30 days after the end of each successive reporting period.

(c) Nineteen months after the effective date of this rule ... [revisor inserts date], no surcharge of any kind shall be payable under this subsection.

SECTION 329. NR 520.04(2) is amended to read:

NR 520.04(2) Upon payment of the transfer fee shown in Table ~~2~~ 3, the department will issue a new operating license to a person acquiring rights of ownership, possession or operation of a licensed facility in accordance with s. 144.444, Stats. Feasibility approvals and plan of operation approvals are not transferable prior to the licensing of a facility.

SECTION 330. NR 520.04(3) is amended to read:

NR 520.04(3) The owner or operator and any successor in interest shall maintain a license during the closure and long-term care period indicated in s. 144.441, Stats. The license fees are specified in ~~Tables 2~~ Table 3.

SECTION 331. NR 520.04(4)(intro) is amended to read:

NR 520.04(4)(intro) For the purposes of determining plan review and license fees ~~charged to land disposal and treatment facilities as provided in Table 2,~~ the following shall apply:

SECTION 332. NR 520.04(4)(a) is amended to read:

NR 520.04(4)(a) Plan review fees shall be charged ~~on the basis of the design capacity of the facility, cell or module for which plans have been submitted. As an example, if a plan of operation report is submitted for a one million cubic yard facility, a review fee for a facility greater than 500,000 cubic yards applies. Construction documentation reports, however, may be submitted over time for several modules. Each construction documentation report review would be charged on the basis of the design capacity of the module submitted. For construction documentation reports for which a design capacity cannot be applied, such as sedimentation basins or remedial actions, a review fee of $200.00 shall apply~~ in accordance with Tables 2 and 3.

SECTION 333. NR 520.05 is repealed and recreated to read:

NR 520.05 FINANCIAL RESPONSIBILITY FOR CLOSURE, LONG-TERM CARE AND REMEDIAL ACTIONS. (1) 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 their operating license and annually thereafter for the period of active facility life, or longer where 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
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 effective date of this rule [revisor inserts date].
c. Last Plan of Operation approved on or after 8/8/89.	Yes.	40 years.	Yes, if a MSW Landfill accepting waste after effective date of this rule [revisor inserts date].
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 stopped prior to effective date of this rule [revisor inserts date].	Yes.	40 years.	No.
c. MSW Landfill which accepted waste after effective date of this rule [revisor inserts date].	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.

LTC = Long-term care
MSW = Municipal Solid Waste

SECTION 336. NR 520.06(2) to (4) are amended to read:

NR 520.06(2) If the owner chooses to deposit cash, certificates of deposit or U.S. government securities with the department, the amount of the deposit shall be determined according to s. NR 520.08 ~~(1) and (2)~~ (1)(a), (2)(a) or (3)(a), if required, and deposits for closure or long-term care shall be submitted as part of the initial license application. Cash deposits placed with the department shall be segregated and invested in an interest bearing account. All interest payments shall be accumulated in the account. The department shall have the right to use part or all of the funds to carry out the 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 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.

(3) If the owner establishes an escrow account, the amount shall be determined according to s. NR 520.08 ~~(1) and (2)~~ (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 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. All interest or coupon payments shall ~~be accumulated~~ 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) 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

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

SECTION 334. NR 520.06(intro) is amended to read:

NR 520.06(intro) Financial assurances for closure, ~~and~~ long-term care~~,~~ and remedial actions where required, shall be established separately. The owner shall specify, as part of the plan of operation submittal, 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:

SECTION 335. NR 520.06(1)(a) and (b) are amended to read:

NR 520.06(1)(a) If the owner chooses to submit a bond, it shall be in the amount determined according to s. NR 520.08 ~~(3) and (4)~~ (1)(b), (2)(b) or (3)(b), if required, conditioned upon faithful performance by the owner and any successor in interest, of all closure or long-term care requirements of the approved plan of operation or subsequent remedial actions required by the department. ~~The bond~~ Bonds for closure or long-term care shall be delivered to the department as part of the initial operating license application. ~~Bond~~ All bonds shall be established using forms ~~shall be~~ supplied by the department.

(b) Bonds shall be issued by a surety company ~~authorized to do surety business in this state~~ among those listed as acceptable sureties for federal bonds in Circular 570 of the U.S. department of the treasury. At the option of the owner, a performance bond or a forfeiture bond may be filed. The department shall be the obligee of the bond. Surety companies may have the opportunity to complete the closure or long-term care of the facility in lieu of cash payment to the department if the owner or any successor in interest fails to carry out the closure or long-term care requirements of the approved plan of operation. The department shall mail notification of its intent to use the funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation have been carried out.

Note: copies of Circular 570, "Companies Holding Certificates of Autyority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" can be obtained from surety bond branch, financial management service, department of the treasury, Washington D.C. 20227, phone (202)874-6850. Copies are available fro inspection at the offices of the department of natural resoures, the secretary of state, and the revisor of statutes.

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) and (2)~~ (1)(a), (2)(a) or (3)(a), if required. A total of no more than $100,000 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. All interest or coupon payments shall ~~be accumulated~~ 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.

SECTION 337. NR 520.06(5)(a) and (b) are amended to read:

NR 520.06(5)(a) If the owner chooses to submit a letter of credit, it shall be in the amount determined according to s. NR 520.08 ~~(3) and (4)~~ (1)(b), (2)(b) or (3)(b), if required, and available exclusively for the purpose of assuring that all closure or long-term care requirements of the approved plan of operation will be complied with. The original letter of credit for closure or long-term care shall be delivered to the department as part of the initial operating license application. Letter of credit forms shall be supplied by the department.

(b) Letters of credit shall be issued by a bank or financial institution which ~~is~~ has the authority to issue letters of credit and whose letter of credit operations are examined and regulated by a federal agency, or in the case of a bank or financial institution located within the state of Wisconsin, which is examined and regulated by the state or a federal agency. The department shall be the beneficiary of the letter of credit.

SECTION 338. NR 520.06(7)(a) and (b) are amended to read:

NR 520.06(7)(a) If the owner chooses to submit an insurance policy for closure or long-term care, it shall be issued for the maximum risk limit determined according to s. NR 520.08 ~~(5) and (6)~~ (1)(b), (2)(b) or (3)(b), if

required. A certificate of insurance for closure or long-term care shall be delivered to the department as part of the initial operating license application. Certificate of insurance forms shall be supplied by the department.

(b) ~~At a minimum,~~ Except for captive insurance companies the ~~agent or broker~~ insurer shall be licensed ~~as a~~ to transact the business of insurance or eligible to provide insurance as an excess or surplus lines ~~insurance agent or broker~~ insurer in one or more states. The department, after conferring with the Wisconsin insurance commissioner, shall determine the acceptability of a surplus lines or captive insurance company to provide coverage for proof of financial responsibility. The department shall ~~base the determinations on any evaluations prepared in accordance with s. 618.41 (6) (d), Stats., by the office of the commissioner of insurance.~~ ask the insurance commissioner to provide a financial analysis of the insurer including a recommendation as to the insurer's ability to provide the required coverage. The department shall be the beneficiary of the insurance policy. The department may require a periodic review of the acceptability of a surplus lines or captive insurance company.

SECTION 339. NR 520.07(1) is amended to read:

NR 520.07(1) For the purpose of determining the amount of proof of financial responsibility that is required in s. NR 520.06, the owner shall estimate the total cost in current dollars of closure for the point in time during operation of the facility when the extent and manner of its operation make closure most expensive, estimate the annual cost in current dollars for each year of the long-term care ~~of the facility for the period~~ proof of owner responsibility period for the facility and submit the estimated closure and long-term care costs together with all necessary justification to the department for approval as part of the plan of operation submittal. The costs shall be based on a third party performing the work and reported on a per unit basis. The source of estimates shall be indicated.

SECTION 340. NR 520.07(2) is amended to read:

NR 520.07(2) At a minimum, closure costs shall include; the purchasing, hauling, placement and documentation testing of all the final cover ~~material~~ materials including soils, membranes, fabrics, and grids and topsoil; seeding, fertilizing, mulching and labor; the installation of gas ~~venting~~ removal and treatment devices; the cost of preparing an engineering report documenting the work performed and a 10% contingency.

SECTION 341. NR 520.07(3) is amended to read:

NR 520.07(3) At a minimum, long-term care costs shall include, where applicable, 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 a 10% contingency. For the purposes of preparing the long-term care cost estimates, all monitoring requirements specified in the plan of operation shall be assumed to apply over the entire long-term care period. Leachate ~~strengths~~ quantity and strength shall ~~not~~ be assumed to ~~decrease~~ remain constant over time and the calculation of leachate generation volumes shall be performed assuming that the waste is at field capacity unless an alternative method is approved by the department in writing. Only detailed performance data will be considered when evaluating estimates for leachate strengths and leachate generation volumes. Leachate treatment costs shall be based on those available from a municipal wastewater treatment plant capable of accepting the leachate in accordance with the applicable requirements of its WPDES permit. The expected operating life of all pumps, manholes, blowers, extraction wells and other 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.

SECTION 342. NR 520.07(5) is repealed.

SECTION 343. NR 520.07(4) is renumbered to NR 520.07(5) and as renumbered is amended to read:

NR 520.07(5) The ~~estimated rate~~ rates of inflation applied to cost estimates approved by the department in previous years shall be the ~~latest percent~~ percentage change in the annual gross ~~national~~ domestic product implicit price deflator published in the survey of current business by the bureau of economic analysis, U.S. department of commerce for the appropriate years. The projected rate of inflation to be applied in proof of financial responsibility calculations for all future years shall be equal to the annual gross domestic product implicit price deflator published in the survey of current business by the bureau of economic analysis, U.S. department of commerce for the last full calendar year.

SECTION 344. NR 520.07(4) is created to read:

NR 520.07(4) REMEDIAL ACTION COSTS. When remedial actions are required by the department, the owner of any municipal solid waste landfill identified in Table 1 as subject to remedial action proof of financial responsibility requirements shall submit cost estimates to the department for performing all activities associated with the required remedial action. The costs shall be provided in current dollars based on a third party performing the work. They shall also be reported on a per unit basis and shall include the source of the estimates. In addition, the length of time necessary to complete the remedial action shall be estimated and the cost of remedial actions for each year shall be presented.

SECTION 345. NR 520.08 is repealed and recreated to read:

NR 520.08 CALCULATING THE AMOUNT OF THE PROOF OF FINANCIAL RESPONSIBILITY. The owner shall, as part of the plan of operation submittal, calculate the necessary amounts of proof of financial responsibility for both closure and long-term care based on the chosen methods of providing proof of financial responsibility.

(1) CLOSURE. (a) For escrow, trust or department accounts, proof of financial responsibility for closure shall be equal to the estimated cost of closure in current dollars multiplied by the quantity of one plus the projected annual rate of inflation expressed as a decimal, and divided by the quantity of one plus the weighted average annual rate of return of the investments in the account expressed as a decimal.

(b) For bonds, letters of credit and insurance, proof of financial responsibility for closure shall be equal to the estimated cost of closure in current dollars multiplied by the quantity of one plus the projected annual rate of inflation expressed as a decimal.

(2) LONG-TERM CARE. (a) For escrow, trust or department accounts, proof of financial responsibility for long-term care shall be provided in accordance with the following:

1. Annual payments shall be made into the account at the beginning of each year of site life. All estimated annual expenditures during the long-term care proof of financial responsibility period shall be assumed to occur at the end of each year of the proof period.
2. Annual payments shall be made in equal dollar amounts or in dollar amounts that increase each year by no more than the projected rate of inflation. However, payments in excess of these minimum amounts may be made in any year, thereby reducing the amounts of subsequent annual payments for the remainder of the site life.
3. The amount of the annual payments shall be calculated and made such that, at the end of the projected facility life, the minimum dollar value of the account is equal to the sum of all estimated long-term care expenditures for the entire long-term care proof of financial responsibility period where 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%.
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%.
5. If an annual payment is missed or made late, the subsequent annual payment shall be increased so that the end of year balances originally calculated based on beginning of year payments are maintained.

(b) For bonds, letters of credit or insurance, proof of financial

responsibility for long-term care shall be equal to the sum of the costs in current dollars of performing each of the years of long-term care for the required long-term care proof of financial responsibility period.

(3) REMEDIAL ACTIONS. (a) For escrow, trust or department accounts, proof of financial responsibility for remedial actions shall be provided in accordance with the following:

1. Annual payments shall be made into the account at the beginning of each year of the first half of the remedial action period. All estimated annual expenditures during the remedial action proof of financial responsibility period shall be assumed to occur at the end of each year of the proof period.
2. Annual payments shall be made in equal dollar amounts or in dollar amounts that increase each year by no more than the project rate of inflation. However, payments in excess of these minimum amounts may be made in any year, thereby reducing the amounts of subsequent payments.
3. The amount of these payments shall be calculated and made such that, half way through the period of time the remedial action is estimated to take to complete, the minimum dollar value of the account is equal to the sum of each annual cost which is estimated to occur in the second half of the remedial action period where 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%.
4. Determination of earnings and procedures to follow in the case of missed or late payments shall be in accordance with sub. (2)(a)2. and 3.

(b) For bonds or letters of credit, remedial action proof of financial responsibility shall be provided in an amount equal to the sum of the remedial action costs estimated to occur in the second half of the remedial action period expressed in current dollars.

SECTION 346. NR 520.10 is amended to read:

NR 520.10 ADJUSTMENT OF FINANCIAL RESPONSIBILITY. Proof of the increase in the amount of all bonds, letters of credit, insurance policies, escrow accounts and trust accounts, or other approved methods established under this chapter shall be submitted annually to the department. ~~The department may adjust the amount of the required proof of financial responsibility for closure or long-term care based upon prevailing or projected interest and inflation rates and the latest cost estimates, and may annually require the owner to adjust the amount of proof of financial responsibility accordingly.~~ The owner of a facility ~~for the land disposal of solid waste~~ identified in Table 1 as being required to establish proof of financial responsibility shall prepare and submit ~~a~~ new ~~closure~~ cost ~~estimate~~ estimates whenever ~~a change in~~ changes to the ~~closure plan affects~~ design or operation of the facility are proposed or otherwise occur which affect the cost of closure, ~~and a new~~ long-term care ~~cost estimate whenever a change in the long-term care requirements in the approved plan of operation affects the cost of long-term care~~ or remedial actions. In addition, where trust accounts, escrow accounts or deposits with the department have been established to provide financial responsibility, revised proof of financial responsibility calculations shall be performed and submitted to the

department any time waste acceptance rates have increased enough to lower the projected remaining operational life of the landfill by one year or more, or when the weighted average annual rate of return of any trust or escrow account has fallen by 1% or more.

SECTION 347. 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, ~~or~~ long-term care or remedial action specified in ~~the approved plan of operation~~ a department approval, the department and its designees shall have the right to enter upon the facility and carry out the closure, ~~or~~ 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, ~~or~~ long-term care or remedial action requirements.

SECTION 348. NR 520.12(2) is amended to read:

NR 520.12(2) One year after closure, and annually thereafter for the period of owner responsibility, the owner who has carried out all necessary long-term care during the preceding year may make application to the department for reimbursement from an escrow account, trust account, deposit with the department, or other approved methods, or for reduction of the bond, insurance or letter of credit equal to the estimated costs for long-term care for that year. The application shall be accompanied by an itemized list of costs incurred. Upon determination that the expenditures incurred are in accordance with the long-term care requirements anticipated in the approved plan of operation, the department may authorize in writing the release of the funds or approve a reduction in the bond, insurance or letter of credit. Prior to authorizing a release of the funds or a reduction of the bond, insurance or letter of credit, the department shall determine that adequate funds exist to complete required long-term care work for the remaining period of owner responsibility. Determinations shall be made within 90 days ~~of~~ after the application. For facilities using escrow accounts, trust accounts or deposits with the department, the department may authorize the release and return of up to 75% of the expected cost of long-term care for the current year. Any funds remaining in an escrow account, trust account, or on deposit with the department at the termination of the period of owner responsibility shall be released to the owner.

SECTION 349. NR 520.12(3) is created to read:

NR 520.12(3) REMEDIAL ACTIONS. One year following the midpoint of the period of time that implementation of a remedial action is expected to take, and annually thereafter for the period of the remedial action, the owner who has carried out all required activities during the preceding year may make

application to the department for reimbursement from an escrow account, trust account, deposit with the department, or other approved methods, or for reduction of the bond, insurance or letter of credit equal to the estimated costs of remedial activities for that year. The application shall be accompanied by an itemized list of costs incurred. Upon determination that the expenditures incurred are in accordance with the approved remedial action requirements, the department may authorize in writing the release of the funds or approve a reduction in the bond, insurance or letter or credit. Prior to authorizing a release of the funds or a reduction of the bond, insurance or letter of credit, the department shall determine that adequate funds exist to complete the required remedial work over the remaining remedial action period. Determinations shall be made within 90 days of the application. Any funds remaining in an escrow account, trust account, or on deposit with the department upon the successful completion of the approved remedial action shall be released to the owner.

SECTION 350. NR 520.14(1) is repealed.

SECTION 351. NR 520.14(2) to (5) are renumbered to NR 520.14(1) to (4).

SECTION 352. NR 520.15(1)(intro) is amended to read:

NR 520.15(1)(intro) The owner or operator shall~~, subject to department approval, use one of the following methods for determining~~ determine the number of tons of waste received and disposed of at the solid waste land disposal facility in accordance with the following.

SECTION 353. NR 520.15(1)(a) is repealed and recreated to read:

NR 520.15(1)(a) For landfills with weight scales, actual weight records shall be used, and all waste accepted shall be routed across the scale.

SECTION 354. NR 520.15(1)(b) is amended to read:

NR 520.15(1)(b) ~~The~~ For landfills without scales, the owner or operator may establish by field measurement the volume of waste disposed and convert to a weight using ~~an assumed compaction density and cover material ratio using~~ the appropriate conversion factors in ~~table 3~~ Table 4. When reporting waste tonnage information to the department based on this method, owners or operators of municipal solid waste landfills shall specify the volume of cover soil used as well as how the volumes of municipal waste and various industrial wastes were determined.

SECTION 355. NR 520.15(1)(c) is repealed and recreated to read:

NR 520,15(1)(c) For rural municipal solid waste landfills serving a

population equivalent of 2,500 or less and receiving little or no industrial waste, the owner or operator may conduct a survey during a representative period of operation to establish average representative weights or volumes of waste disposed. Changes in seasonal population shall be considered when establishing representative weights or volumes. Alternatively, the owner or operator may use a waste generation rate of 2 pounds per capita per day and apply it over the number of days in the reporting period. Changes in seasonal population shall be considered when applying a per capita generation rate.

SECTION 356. NR 520.15(1)(d) is repealed.

SECTION 357. NR 520.15(2)(intro) is amended to read:

NR 520.15(2)(intro) The conversion factors in ~~table 3~~ Table 4 shall be used. All conversion factors are based on wet densities. The densities provided for domestic residential waste and commercial waste in ~~table 3~~ Table 4 are subject to mechanical compaction, such as packer trucks or enclosed roll off containers coupled to hydraulic compactors. If the waste is loose, 200 pounds per cubic yard shall be used as the conversion factor.

SECTION 358. A TABLE following NR 520.15(2) is amended to read:

TABLE ~~3~~ 4

CONVERSION FACTORS

Municipal solid waste	
As delivered	
Domestic residential	425 pounds/cubic yard
Commercial	375 pounds/cubic yard
Industrial - other than specified below	300 pounds/cubic yard
Bulky	400 pounds/cubic yard
~~Trees and brush~~	~~300 pounds/cubic yard~~
Demolition	1,250 pounds/cubic yard
~~Liquids~~	~~8.34 pounds/gallon~~
Compacted in place	~~1,000~~ 1,200 pounds/cubic yard
Facilities receiving only demolition waste	1,400 pounds/cubic yard
Municipal wastewater sludge	~~8.34 pounds/gallon~~ 1,684 pounds/cubic yard
Municipal incinerator ash	
As delivered - uncompacted	1,500 pounds/cubic yard
In-field - compacted	2,700 pounds/cubic yard
Pulp and papermill sludge	
As delivered - uncompacted	1,800 pounds/cubic yard

In-field - consolidated	2,200 pounds/cubic yard
Utility ash - fly and bottom	
As delivered - uncompacted	2,200 pounds/cubic yard
In-field - compacted	2,400 pounds/cubic yard
Foundry wastes	
As delivered - uncompacted	2,600 pounds/cubic yard
In-field - compacted	3,000 pounds/cubic yard

SECTION 359. NR 520.15(2)(c) is renumbered to 520.15(3).

SECTION 360. TABLE 1 following NR 520.15(2)(3) is repealed and recreated to read:

TABLE 2

FEE SCHEDULE -- ALL FACILITIES EXCEPT LANDFILLS AND SURFACE IMPOUNDMENTS

			Plan Review Fees[1] [2]		License Fees
Facility Type	License Required	Plan Review Required	Plan of Operation	Facilities Construction Documentation	0-12 months
Exemption Request	No	Yes	500		
STORAGE FACILITY					
Containerized	Yes	No[5]			80
Non-containerized	Yes	Yes	600	150	150
Collection & Transportation	Yes	No			80
Each Additional Truck	Yes	No			20[4]
OTHER FACILITY					
Transfer	Yes	Yes	300	150	150
Processing[3]	Yes	Yes	600[6]	150	150
Incineration[3]	Yes	Yes	600		150
Woodburning	Yes	Yes	150		150
One Time Disposal	No	Yes	600		
Municipal Solid Waste Combustors	Yes	Yes	600	150	150
Land Spreading	No	Yes	600		
Infections Waste Transportation	Yes	No			250
Each Additional Truck					20
Infectious Waste Annual Report	No	Yes			50[7]
Medical Waste Reduction Plan	No	No[8]	600[8]		

(1) 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 a plan review fee as specified in Table 2 for resubmittal of a plan which has been withdrawn after having been determined to be complete.

(2) The department may waive any plan review fee if it determines that the total review time is not likely to exceed 4 hours.

(3) The department shall waive the plan review fees and license fees for a processing facility or incinerator which has a primary purpose of converting solid waste into usable materials, products or energy.

(4) The department may waive the additional license fee for trucks used only once or twice a year for spring/fall clean-up operations by municipalities.

(5) Storage facilities which store infectious waste under s. NR 526.09 shall submit a plan of operation and a plan review fee of $600.

(6) Processing facilities which treat infectious waste under s. NR 526.12 shall pay an additional $900 plan review fee, or a total of $1500.

(7) This is an annual filing fee.

(8) If the department requires a medical facility to submit its medical waste reduction plan under s. NR 526.22, the plan review fee must also be submitted.

SECTION 361. TABLE 2 following NR 520.15(2)(3) is repealed and recreated to read:

TABLE 3

FEE SCHEDULE -- LANDFILLS AND SURFACE IMPOUNDMENTS

	Plan Review Fees[1] [2]							License Fees		
Facility Type	License Required	Plan Review Required	Pre-Feas. or Initial Site Report[3] NR 509/510	Feasi-bility Report NR 512	Plan of Opera-tion NR 514	Cons.[9] Insp.	Cons. Doc.[6] NR 516	Closure Plan NR 514	0-12 months	Closure & Long-term care period[8]	License Transfer
Landfills and Surface Impoundments											
1. <50,000 yd3	Yes	Yes	3000	20000	7000	500	1000[5]	5000	1500	6000	1500
2. <500,000 yd3	Yes	Yes	3000	20000	7000	500	1000[5]	5000	3500	6000	3500
3. >500,000 yd3	Yes	Yes	3000	20000	7000	500	1000[5]	5000	7000	6000	7000
Plan Modification[4],[11]	No	Yes	N/A	1500	1500[7]	N/A	N/A	150	N/A	N/A	N/A
Small Size Construction & Demolition Waste Landfills	No	Yes	N/A	N/A	1000	500	200	N/A	1500[10]	N/A	N/A
Intermediate Size Construction & Demolition Waste Ldfs.	No	Yes	N/A	N/A	7000	500	1000	N/A	3500[10]	6000	N/A

(1) The plan review fees specified in Table 3 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 a plan review fee as specified in Table 3 for resubmittal of a plan which has been withdrawn after having been determined to be complete.

(2) The department may waive any plan review fee if determines that the total review time is not likely to exceed 4 hours.

(3) For an initial site report submittal which includes more than one location, the applicant shall pay a separate fee, as shown in Table 3, for each location.

(4) A plan modification, as referred to in Table 3, is a submittal which proposes to modify a feasibility report, plan of operation or closure plan previously approved by the department. This fee also applies to a submittal which proposes to change the design management zone (DMZ) or requests recalculation of indicator preventive action limits (PAL's) as defined in ch. NR 140. The $600 fee applies to facilities which request a modification to the DMZ or indicator PAL's and have an approved plan of operation and the $150 fee applies to those facilities which have an approved closure plan. A fee of $750 applies to the review of the PALs.

(5) This review fee also applies to construction documentation reports for which a design capacity cannot be applied, such as sedimentation basins or remedial actions.

(6) These review fees apply to each facility construction documentation report submitted.

(7) This fee also applies to any facility which requests an exemption to the groundwater standards contained in ch. NR 140.

(8) This fee is a one-time payment only for the term of the licensee's long-term care responsibility.

(9) This fee applies to each phase of construction to a maximum of $5000 (10 inspections).

(10) Operation inspection fee.

(11) No review fee is owed for plan modifications submitted and approved under s. NR 514.09 Expedited Plan Modifications.

SECTION 362. NR 524.04(1)(a) is amended to read:

NR 524.04(1)(a) Facilities which are not required to be licensed under s. 144.44(4), Stats., except for small size construction and demolition ~~facilities~~ waste landfills subject to s. NR ~~502.13.~~ 503.09 and intermediate size construction and demolition waste landfills subject to s. NR 503.10.

SECTION 363. NR 524.05(1)(title) is amended to read:

NR 524.05(1) MUNICIPAL, MIXED WASTE AND INTERMEDIATE SIZE CONSTRUCTION AND DEMOLITION DISPOSAL FACILITIES.

SECTION 364. NR 524.05(1)(a) is amended to read:

NR 524.05(1)(a) Submit to the department with the submittal of the annual licensing application form, or if annual licensing is not required a submittal to the department by October 1 of each year, the name of at least one certified facility manager who is certified under the appropriate division under s. NR 524.07 (1). This person or persons shall be designated to perform the duties required in s. NR 524.06 (1) for the facility.

SECTION 365. NR 526.04(1) is amended to read:

NR 526.04(1) In special cases, the department may grant exemptions in writing from non-statutory requirements of this chapter. A person may apply for an exemption under this section by providing the department with a written request along with appropriate documentation which demonstrates to the satisfaction of the department that the proposal will not cause environmental pollution as defined in s. 144.01(3), Stats., and will protect waste handlers and other persons from exposure to infectious waste. The department will send an invoice for the exemption request fee specified in s. NR 520.04, ~~table 1~~ Table 2, upon receipt of the exemption request. In making its decision, the department shall take into account factors such as the population of the area being served, the amount of waste being generated, the design of the facility, the operational history of the facility, the physical and chemical characteristics of the waste and any other information which may be appropriate. The department may grant exemptions under this section if the department finds that granting the exemption will not cause environmental pollution as defined in s. 144.01(3), Stats., and that the exemption will protect waste handlers and other persons from exposure to infectious waste.

SECTION 366. NR 526.05(2)(g) is created to read:

NR 526.05(2)(g) Formerly infectious waste, after it has been treated according to s. NR 526.11.

SECTION 367. NR 526.07(intro) is amended to read:

NR 526.07 CONTAINMENT.(intro) No person may transport infectious waste from the ~~generation site~~ property where the waste was generated unless the person puts the waste in a container which protects waste handlers and other persons from exposure to the infectious waste and the person meets all of the following requirements:

SECTION 368. NR 526.08(2) is amended to read:

NR 526.08(2) ~~If the infectious waste is putrescible waste or if nuisance conditions have developed,~~Nuisance conditions shall be prevented from developing. Appropriate measures shall be taken to prevent odors, including but not limited to refrigerating the infectious waste ~~shall be kept refrigerated~~ below 42 ~~degrees~~ ° Fahrenheit until treated.

SECTION 369. NR 526.09(1)(c) and (d) are amended to read:

NR 526.09(1)(c) Submit the plan of operation to the department for approval, according to the requirements in s. NR 500.05. Upon receipt of the plan of operation, the department will send an invoice for the plan review fee for infectious waste storage facilities, as specified in s. NR 520.04, ~~table 1~~ Table 2.

(d) After obtaining a plan of operation approval from the department, submit an application form for the operating license and the license fee, according to ss. NR 500.06 and 520.04, ~~table 1~~ Table 2.

SECTION 370. NR 526.09(3) is amended to read:

NR 526.09(3) No person may establish or construct an infectious waste storage facility or expand an existing facility unless the person has obtained a plan of operation approval from the department or unless the facility is exempt from licensing under sub. (2). The plan of operation shall specify the intent and objectives of the proposal and indicate methods and procedures to prevent and minimize adverse environmental and health impacts. Unless otherwise approved by the department in writing, the plan shall be submitted in accordance with s. NR 500.05 and shall contain, at a minimum, the information listed in s. NR ~~502.05(5)~~ 502.05(8), except s. NR ~~502.05(5)(e)~~ 502.05(8)(e), and any other details necessary to address the requirements in this chapter, including but not limited to requirements for handling and containment and the requirements of sub. (4).

SECTION 371. NR 526.09(4)(e) is amended to read:

NR 526.09(4)(e) ~~If the infectious waste is putrescible waste or if nuisance conditions have developed,~~Nuisance conditions shall be prevented from developing. Appropriate measures shall be taken to prevent odors, including but not limited to refrigerating the infectious waste ~~shall be kept refrigerated~~ below 42 ~~degrees~~ ° Fahrenheit until treated.

SECTION 372. NR 526.09(5)(e)1. is amended to read:

NR 526.09(5)(e)1. Name, street address, county and phone number, if any, of the place where the sharps collection station is located.

SECTION 373. NR 526.09(5)(e)4. is repealed.

SECTION 374. NR 526.09(5)(e)5. is renumbered to NR 526.09(5)(e)4.

SECTION 375. NR 526.10(1) is amended to read:

NR 526.10(1) Except as provided in sub. (2), no person may transport infectious waste or operate or maintain an infectious waste transportation service unless the person has obtained an infectious waste transportation license from the department for each vehicle and complies with both the minimum transportation requirements in sub. (3) and the operating requirements for licensed infectious waste transporters in sub. (4). To apply for an operating license, the applicant shall submit an application form and the infectious waste transportation license fee according to s. NR 520.04, ~~table 1~~ Table 2.

SECTION 376. NR 526.10(3)(c)4. is amended to read:

NR 526.10(3)(c)4. ~~If the infectious waste is putrescible waste or if nuisance conditions have developed,~~Nuisance conditions shall be prevented from developing. Appropriate measures shall be taken to prevent odors, including but not limited to refrigerating the infectious waste ~~shall be kept refrigerated~~ below 42 ~~degrees~~ ° Fahrenheit until treated.

SECTION 377. A NOTE following NR 526.10(3)(d)2. is created to read:

NR 526.10(3)(d)2. **Note:** Other transportation regulations, such as federal department of transportation standards, may also apply.

SECTION 378. NR 526.11(1)(a) is amended to read:

NR 526.11(1)(a) Treatment by incineration shall consist of incineration in a controlled air, multi-chambered incinerator which provides complete combustion of the waste to carbonized or mineralized ash. The incinerator shall be one that is regulated by the department under s. NR 502.09 or ~~502.14~~ 502.13.

SECTION 379. NR 526.11(2)(b)3. is amended to read:

NR 526.11(2)(b)3. Burial on the land on which the animal was kept, in accordance with s. 144.44(7)(h), Stats., for animals infected with scrapie or

s. 144.44(7)(g), Stats., or s. NR ~~502.12~~ 503.08 for other animals.

SECTION 380. NR 526.11(2)(e) is amended to read:

NR 526.11(2)(e) Body fluids~~, as defined in s. NR 500.03(12r),~~ and blood-contaminated urine and feces shall be treated by any of the methods listed in par. (d) or by disposal in a septic system.

SECTION 381. NR 526.12(1)(a) is amended to read:

NR 526.11(1)(a) Contact the department's district or area office as appropriate to arrange an initial site inspection for the purpose of evaluating compliance with the requirements of s. NR ~~502.08(7)~~ 502.08(3).

SECTION 382. NR 526.12(1)(c) is amended to read:

NR 526.12(1)(c) Submit the plan of operation to the department for approval, according to the requirements in s. NR 500.05. Upon receipt of the plan of operation, the department shall send an invoice for the plan review fee for solid waste processing facilities and the additional fee for processing facilities which treat infectious waste, as specified in s. NR 520.04, ~~table 1~~ Table 2.

SECTION 383. NR 526.12(1)(d) is amended to read:

NR 526.12(1)(d) After obtaining a plan of operation approval from the department, submit an application form for the operating license and the license fee for a solid waste processing facility, according to ss. NR 500.06 and 520.04, ~~table 1~~ Table 2.

SECTION 384. NR 526.12(2)(b) is amended to read:

NR 526.12(2)(b) Incinerators and municipal solid waste combustors, which are regulated under s. NR 502.09 or ~~502.14~~ 502.13. In addition to what is required under those sections, persons operating incinerators and municipal solid waste combustors shall follow the requirements in sub. (4)(a) and (c) for operating an infectious waste treatment unit and for keeping records.

SECTION 385. NR 526.12(3) is amended to read:

NR 526.12(3) Except as provided in sub. (2), no person may establish or construct an infectious waste treatment facility or expand an existing facility unless the person has met the applicable requirements of s. NR 502.08 for solid waste processing facilities and has obtained from the department a plan of operation approval and applied for an operating license as a solid waste processing facility. The plan of operation shall specify the intent and

objectives of the proposal and indicate methods and procedures to prevent and minimize adverse environmental and health impacts. Unless otherwise approved by the department in writing, the plan shall be submitted in accordance with s. NR 500.05 and shall contain, at a minimum, the information listed in s. NR ~~502.08(5) to (8)~~ 502.08(3) to (5) and any other details necessary to address the requirements in this chapter, including but not limited to requirements for handling, containment and storage and the requirements in subs. (4) and (5).

SECTION 386. NR 526.12(5) is amended to read:

NR 526.12(5) In addition to the requirements in sub. (4), persons who operate infectious waste treatment facilities which are required to be licensed as solid waste processing facilities under sub. (1) shall meet the requirements in ~~s.~~ ss. NR ~~502.08(9) to (14)~~ 502.08(6) to (8), 502.04 and 502.045.

SECTION 387. NR 526.14(2)(b)2. is amended to read:

NR 526.14(2)(b)2. An infectious waste generator transporting less than 50 pounds per calendar month of untreated infectious waste away from the ~~place~~ property where the waste was initially generated, including items which are mixed with the infectious waste.

SECTION 388. A NOTE following NR 526.14(4)(a) is created to read:

NR 526.14(4)(a) **Note:** Hospitals, clinics and nursing homes should keep records for at least 5 years to comply with s. NR 526.19(9)(a) and (g).

SECTION 389. NR 526.15 is amended to read:

NR 526.15 INFECTIOUS WASTE ANNUAL REPORTS. An infectious waste generator which is either required to use manifests under s. NR 526.14 or to submit progress reports on medical waste reduction under s. NR 526.21 shall submit an annual report to the department on a form supplied by the department and the annual filing fee for the infectious waste annual report, as specified in s. NR 520.04, ~~table 1~~ Table 2. Infectious waste generators who manifest infectious waste as a group may choose to submit a single annual report on behalf of the group and which is signed by a representative of each generator in the group. Except as required under s. NR 526.21(1), the annual report shall be submitted by March 1 for activities performed during the preceding calendar year. The annual report shall contain the information on the department's form and shall be signed by the administrator or chief executive officer of the infectious waste generator.

SECTION 390. NR 526.21(1)(intro) is amended to read:

NR 526.21(1)(intro) The first progress report shall be submitted to the department within ~~3~~ 4 months of the date specified in s. NR 526.20(1) for

implementation of the plan. The first progress report shall include all of the following:

SECTION 391. NR 526.21(1)(h) is amended to read:

NR 526.21(1)(h) Filing fee for an infectious waste annual report as specified in s. NR 520.04, ~~table 1~~ Table 2.

SECTION 392. NR 526.22(2) is amended to read:

NR 526.22(2) Each director shall make available copies of the most recent medical waste reduction policy and plan, any amendments to the policy or plan, the results of all waste audits, and all progress reports to the department for review upon request. The department may require the director to provide a copy of this material to the department without charge to the department. Upon receipt of the plan, the department will send an invoice for the medical waste reduction plan review fee required in s. NR 520.04, ~~table 1~~ Table 2.

SECTION 393. NR 605.05(1)(l) is repealed.

The foregoing rule was approved and adopted by the State of Wisconsin Natural Resources Board on February 28, 1996.

The rules shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin May 13, 1996

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By George E. Meyer
George E. Meyer, Secretary

(SEAL)

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary

Box 7921
101 South Webster Street
Madison, Wisconsin 53707-7921
TELEPHONE 608-266-2621
FAX 608-267-3579
TDD 608-267-6897

May 13, 1996

Mr. Gary L. Poulson
Assistant Revisor of Statutes
131 West Wilson Street - Suite 800
Madison, WI

Dear Mr. Poulson:

Enclosed are two copies, including one certified copy, of State of Wisconsin Natural Resources Board Order No. SW-40-95. These rules were reviewed by the Assembly Committee on Natural Resources and the Senate Committee on Environment and Energy pursuant to s. 227.19, Stats. Summaries of the final regulatory flexibility analysis and comments of the legislative review committees are also enclosed.

You will note that this order takes effect following publication. Kindly publish it in the Administrative Code accordingly.

Sincerely,

George E. Meyer
Secretary

Enc.