Chapter NR 503

ONE TIME DISPOSAL LANDFILLS, SMALL SIZE CONSTRUCTION AND DEMOLITION WASTE LANDFILLS, AND INTERMEDIATE SIZE CONSTRUCTION AND DEMOLITION WASTE LANDFILLS

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Note: Corrections made under s. 13.93 (2m) (b) 7., Stats., Register, August, 1997, No. 500.

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 s. 227.11, Stats., and ch. 289, Stats.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96.

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. 291.01 (8), Stats., and regulated under chs. NR 660 to 679; metallic mining operations for nonferrous minerals as defined in s. 293.01 (9), Stats., and regulated under ch. NR 182; and metallic mining operations for ferrous minerals as defined in s. 295.41 (26), Stats., including mining wastes and mining waste sites as defined in s. 295.41 (30) and (31), Stats., and regulated under subch. III of ch. 295, Stats. Construction and demolition landfills which have a design capacity greater than 250,000 cubic yards are regulated under chs. NR 500 and 504 to 538.

(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. 281.41, Stats., or permitted under ch. 283, Stats., nor to facilities used solely for the disposal of liquid municipal or industrial wastes which have been approved under s. 281.41, Stats., or permitted under ch. 283, Stats., except for facilities used for the disposal of solid waste.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96; corrections in (1) made under s. 13.92 (4) (b) 7., Stats., Register February 2010 No. 650; **CR 13−057: am. (1) Register July 2015 No. 715, eff. 8−1−15.**

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" to mean a landfill with a design capacity of 50,000 cubic yards or less and used for the disposal of only construction and demolition wastes.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96.

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 or state natural area under ss. 23.27 (1) and 23.28 (1), Stats., unless the landfill is screened by natural objects, plantings, fences or other appropriate means so that it is not visible from the highway, park or state natural area.

(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 take of an endangered or threatened species or other activity prohibited under s. 29.604, Stats.

(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.

Note: Sections NR 445.04 and 445.05 were repealed effective 8−1−08.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96; CR 05−020: am. (2) (d) and (3) (b) Register January 2006 No. 601, eff. 2−1−06.

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 ch. 289, Stats.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96.

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 4400−067 proof that a notation of the existence of the landfill has been recorded in the office of the register of deeds in each county in which a portion of the landfill is located. Landfills which were in existence prior to July 1, 1996, and continue to operate after this date shall submit an affidavit of site registry within 90 days after July 1, 1996.

Note: This form may be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707−7921, (608) 266−2111, waste.management@dnr.state.wi.us.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96; CR 05−020: am. Register January 2006 No. 601, eff. 2−1−06.

NR 503.07 Initial site inspection. (1) INSPECTION REQUEST. Any person intending to establish a new landfill or an expansion of an existing landfill regulated under this chapter 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 bureau of waste management 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) Identification of any known potential impacts to endangered and threatened species in accordance with s. 29.604 (4), Stats., and the federal endangered species act or historical, scientific or archeological areas in accordance with s. 44.40, Stats., including any prior studies or surveys conducted at the proposed site.

(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.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96; CR 05−020: am. (1), r. and recr. (4) (b), r. (4) (c) and (5) Register January 2006 No. 601, eff. 2−1−06.

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 1/4 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 1/4 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.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96.

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

(2) 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 1/4 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. (6).

(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.

(3) 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 July 1, 1996, shall submit a waste screening and handling plan to the department no later than 3 months after July 1, 1996, for approval. Small size construction and demolition waste landfills which did not begin operation prior to July 1, 1996, may not accept waste until a waste screening plan is approved in writing by the department.

(4) 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 1/4 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.

(5) 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.

(6) 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 unless otherwise approved in writing by the department. All test results shall be submitted to the department in accordance with ch. NR 507.

(7) 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.

(8) 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 1/4 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.

(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 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 July 1, 1996, 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 July 1, 1996, and continues to operate after July 1, 1996, shall pay an operation inspection fee to the department in accordance with ch. NR 520 Table 3, within 90 days after July 1, 1996, and annually on October 1st of each year.

(10) 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.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96; am. (3) (a), Register, August, 1997, No. 500, eff. 9−1−97; CR 05−020: renum. (1) to (9) to be (2) to (10) and am. (6) (f), cr. (1) Register January 2006 No. 601, eff. 2−1−06; correction in (2) (i) made under s. 13.93 (2m) (b) 7., Stats., Register January 2006 No. 601.

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 July 1, 1996, 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 1/4 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 1/4 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; pro-

posed 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 1/4 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 geological 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.

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.

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

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 location shall be submitted in the report. Any environmental monitoring data included in the report shall be submitted electronically.

(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 1/4 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′ 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 employees. 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 1 1/2 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 1,200 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. 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 par. (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, 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and the 2004 supplemental specifications 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, 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and the 2004 supplemental specifications. Application rates for fertilizer and mulch shall also be specified.

Note: Copies of 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and any annual supplemental specifications are available at http://www.dot.wisconsin.gov/business/engrserv/procedures.htm or can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707−7921, (608) 266−2111, waste.management@dnr.state.wi.us. Copies are also available for inspection at the offices of the legislative reference bureau 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 (3). 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 according to the applicable requirements of s. NR 503.09 (4), and technical standards developed under subch. V of ch. NR 151, 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: The technical standards developed by the Wisconsin department of natural resources, runoff management program are available at http://dnr.wi.gov/topic/stormwater/standards/ or can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707−7921, (608) 266−2111, waste.management@dnr.state.wi.us. Copies are also available for inspection at the offices of the legislative reference bureau 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 sowing rates shall be those specified for right–of–ways according to section 630, 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and the 2004 supplemental specifications.

Note: The 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and any annual supplemental specifications are available at http://www.dot.wisconsin.gov/business/engrserv/procedures.htm or can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707−7921, (608) 266−2111, waste.management@dnr.state.wi.us. Copies are also available for inspection at the offices of the legislative reference bureau 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 sea-

son, 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 soil borrow sources shall comply with the requirements of s. NR 504.075.

(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 sowing rates shall be those specified for right–of–ways according to section 630, 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and the 2004 supplemental specifications.

Note: The 2003 edition of the Wisconsin department of transportation standard specifications for highway and structure construction and any annual supplemental specifications are available at http://www.dot.wisconsin.gov/business/engrserv/procedures.htm or can be obtained from the department of natural resources, bureau of waste management, 101 S. Webster Street, P.O. Box 7921, Madison, WI 53707−7921, (608) 266−2111, waste.management@dnr.state.wi.us. Copies are also available for inspection at the offices of the legislative reference bureau 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 538. 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 ch. 289, 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 538. 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. 281.01 (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, employee 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. 289.91, Stats., inspect construction projects for the purpose of determining compliance with ch. 289, Stats., and chs. NR 500 to 538. 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. Documenta-

tion 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 for all parameters in Table 3 except VOCs 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 parameter listed in Table 3 which attained or exceeded the preventive action limit established in Table 1 of ch. NR 140 during 2 or more of the first 4 rounds or attained or exceeded the enforcement standard established in Table 1 of ch. NR 140 during one or more of the first 4 rounds.

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

(br) Samples shall be collected for VOC analysis from each well at the same time as the first and second sampling rounds are collected to establish baseline for the other Table 3 parameters. If any well has VOC parameters in concentrations above the 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 proposal for constructing the landfill and in accordance with s. NR 507.26 (3).

(c) If additional samples are required under par. (b) or (br) 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 unless otherwise approved in writing by the department.

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-day}	BOD_{5-day}
	Cadmium	Cadmium
	Chloride	Chloride
	COD	COD
	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 1/4 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 July 1, 1996, 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 July 1, 1996, 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.

History: Cr. Register, June, 1996, No. 486, eff. 7−1−96; am. (3) (d) 19. and (7) (g) Table 4, Register, August, 1997, No. 500, eff. 9−1−97; am. (4) (n), (o) and (5) (d), Register, December, 1997, No. 504, eff. 1−1−98; correction in (5) (d) made under s. 13.93 (2m) (b) 7., Stats., Register March 2003 No. 567; CR 05−020: am. (2) (c) (intro.), (d) 4. b., (3) (e) 5. and 6., (4) (b) (intro.),(d), (h), (j) 6., (7) (b), (c) and (e), cr. (7) (bg) and (br) Register January 2006 No. 601, eff. 2−1−06; correction in (4) (a) 10. made under s. 13.93 (2m) (b) 7., Stats., Register January 2006 No. 601.