



CR 89-201

State of Wisconsin

DEPARTMENT OF NATURAL RESOURCES


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STATE OF WISCONSIN)
)
DEPARTMENT OF NATURAL RESOURCES) ss

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Bruce B. Braun, Deputy Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. SW-63-89 was duly approved and adopted by this Department on July 26, 1990. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have here-
unto set my hand and affixed the
official seal of the Department at
the Natural Resources Building in
the City of Madison, this 5th
day of November, 1990.


Bruce B. Braun, Deputy Secretary

(SEAL)

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5-1-91

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

.....
IN THE MATTER of repealing ch. NR 181; renumbering
s. NR 506.15; amending ss. NR 157.02(9), 157.03(2)(b)
and (d), 157.04(1), 157.05(1) and 157.07(2)(a) and (3);
and creating s. NR 506.15 and chs. NR 600, 605, 610,
615, 620, 625, 630, 635, 640, 645, 650, 655, 660, 665,
670, 675, 680 and 685 of the Wisconsin Administrative
Code pertaining to hazardous waste management
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SW-64-89

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Analysis Prepared by the Department of Natural Resources

Statutory authority: ss. 144.431(1)(a), 144.44(1m), 144.62(2), (3), (5), (8), (8m) and (10)(a) and 227.11(2)(a), Stats.

Statutes interpreted: ss. 144.44, 144.441, 144.443, 144.444, 144.60(2), 144.62, 144.63, 144.68 and 144.76, Stats.

Chapter NR 157, Wis. Adm. Code, is amended to include cross references to chs. NR 600 to 685, Wis. Adm. Code, and to require the use of the manifest form for transportation of PCBs. The repeal of ch. NR 181, Wis. Adm. Code, and creation of chs. NR 600 to 685, Wis. Adm. Code, incorporates recent changes to the Federal Resource Conservation and Recovery Act (RCRA) made primarily by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The major changes as a result of this legislation include: adding provisions to require the treatment of certain hazardous wastes before they are disposed of in a landfill or surface impoundment, adding requirements for corrective action at treatment, storage and disposal facilities and substantial changes to the requirements for treatment or storage of hazardous waste in tanks. In addition to incorporating new federal requirements, the rules divide the existing code (ch. NR 181, Wis. Adm. Code) into 17 smaller, more manageable chapters. Finally, plan review and licensing fees have been increased.

SECTION 1. NR 157.02(9), 157.03(2)(b) and (d), 157.04(1), 157.05(1) and 157.07(2)(a) and (3) are amended to read:

NR 157.02(9) "Waste tracking form" is a form provided or approved by the department for use in recording all movement of PCBs or products containing PCBs for disposal or shipment to a service facility, and includes the Wisconsin hazardous waste manifest form.

NR 157.03(2)(b) Except as provided in s. NR 157.05, the generator shall transport PCBs or products containing PCBs for disposal in self-owned and operated vehicles or by contract with a transporter licensed as a transporter of hazardous wastes pursuant to ~~ss. NR 181.31 and 181.55~~ chs. NR 620 and 680.

(d) Prior to shipment of PCBs or products containing PCBs for disposal, the generator shall ascertain that the PCBs or products containing PCBs are packaged or stored in sturdy and secure containers in a manner to prevent leakage or spillage. The generator shall also ascertain that the transporter is licensed pursuant to ~~ss. NR 181.31 and 181.55~~, chs. NR 620 and 680 as a transporter of

hazardous wastes. In the event of spillage of PCBs or products containing PCBs, the generator, as owner of the spilled substances, shall take whatever actions are necessary to prevent or minimize damages to the environment or will assist the transporter to prevent or minimize damages to the environment.

NR 157.04 TRANSPORTER RESPONSIBILITIES. (1) No person shall transport PCBs or products containing PCBs for disposal unless licensed pursuant to ~~ss. NR 181.31 and 181.55~~ chs. NR 620 and 680 as a transporter of hazardous wastes. This requirement shall not apply to the transportation of PCBs or products containing PCBs by the generator.

NR 157.05 FULL-SERVICE CONTRACTORS. (1) In lieu of meeting the requirements appearing in ss. NR 157.03(2) and 157.04, the generator may contract with a full-service contractor for transportation, servicing or processing of PCBs or products containing PCBs for disposal. A full-service contractor shall be licensed as a transporter of hazardous wastes pursuant to ~~ss. NR 181.31 and 181.55~~ chs. NR 620 and 680 and shall have a minimum of \$300,000 in liability insurance. This insurance shall provide coverage for damage resulting from spillage of PCBs and products containing PCBs or from disposal at any facility which is not approved for acceptance of PCBs by the applicable state or federal agency for the disposal of PCBs.

NR 157.07(2)(a) Complete plans and specifications for an incineration facility shall be submitted to the department in accordance with all applicable provisions of ~~chs. NR 154 and 181~~ chs. NR 400 to 499 and 600 to 699.

(3) LANDFILL FACILITIES. A landfill for disposal of PCBs and products containing PCBs shall not be established or operated in the state of Wisconsin until written approval of the department is obtained for such disposal as provided in ~~s. NR 181.44(10)(b)~~ s. NR 660.13(2)(a). The proposed landfill shall be established and licensed in accordance with the requirements of ~~ch. NR 181~~ chs. NR 630, 660 and 680 and other requirements applicable to disposal of PCBs and products containing PCBs. Such a landfill must provide complete long-term protection for the quality of surface and subsurface waters from PCBs deposited therein and must prevent hazards to public health and the environment. Such sites must be located or engineered to avoid direct hydraulic continuity with surface and subsurface waters. Generated leachates must be contained and subsurface flow into the disposal area eliminated.

Monitoring wells must be established, and a sampling and analysis program conducted as specified in s. ~~NR 181.44(11)(a)~~ s. NR 600.14(1).

SECTION 2. Chapter NR 181 is repealed.

SECTION 3. NR 506.15 is renumbered NR 506.16.

SECTION 4. NR 506.15 is created to read:

NR 506.15 VERY SMALL QUANTITIES OF HAZARDOUS WASTE. No person may accept hazardous waste from very small quantity generators which are excluded from regulation under s. NR 610.07 at a solid waste disposal facility unless the facility meets the requirements of this section.

(1) **FACILITY CRITERIA.** A facility may not accept hazardous waste from very small quantity generators for disposal unless:

- (a) The facility is a licensed and approved facility as defined in s. 144.441(1)(a), Stats.;
- (b) The facility is in compliance with all solid waste regulations and any plan approval; and
- (c) The facility is in substantial compliance with the minimum design criteria specified in s. NR

504.05.

(2) **GENERAL REQUIREMENTS.** No person may accept hazardous waste for disposal in a solid waste disposal facility from very small quantity generators unless:

- (a) The person has obtained written approval under s. NR 506.09 and complies with all conditions of the approval;
- (b) The person submits annual reports to the department no later than April 1 of the following year which document the types and quantities of hazardous waste accepted during the previous year, the generators and transporters of the waste and any other information required by the department; and
- (c) The person has paid the waste management fund fees specified in s. 144.441(4)(b), Stats., for all hazardous waste quantities accepted.

SECTION 4. Chapters NR 600, 605, 610, 615, 620, 625, 630, 635, 640, 645, 650, 655, 660, 665, 670, 675, 680 and 685 are created to read:

NR 600 - GENERAL

page	section
1	NR 600.01 - Purpose
1	NR 600.02 - Applicability
1	NR 600.03 - Definitions
22	NR 600.04 - Prohibited activities
22	NR 600.05 - Notification of hazardous waste activities
24	NR 600.06 - Confidentiality of information
24	NR 600.07 - Special requirements where a discharge has occurred or is likely to occur
25	NR 600.08 - Review time periods
25	NR 600.09 - Waivers
26	NR 600.10 - Incorporation by reference
32	NR 600.11 - Enforcement

NR 600.01 PURPOSE. The purpose of this chapter is to provide definitions, general permit application information, incorporation by reference citations and general information concerning the hazardous waste management program.

NR 600.02 APPLICABILITY. This chapter applies to persons who generate, transport, recycle, store, treat or dispose of solid waste that meets the criteria for hazardous waste under s. NR 605.04. Except as otherwise provided, this chapter does not apply to solid waste facilities or solid waste generators or transporters that manage only:

- (1) Non-hazardous solid waste,
- (2) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (3) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (4) A combination of wastes described in pars. (a) to (c).

NR 600.03 DEFINITIONS. The following definitions apply to chs. NR 600 to 699:

(1) "Above ground tank" means a tank that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire external surface area of the tank, including the tank bottom, may be visually inspected.

(2) "Absorption" means the penetration of one substance into the inner structure of another.

(3) "Accidental occurrence" means an accident which results in bodily injury or property damage neither expected nor intended from the standpoint of the insured.

(4) "Active life" or "active life of a facility" means the period from initial receipt of hazardous waste at a facility until the department receives and approves of the certification of final closure required under s. NR 685.05(10)(a).

(5) "Active portion" means that portion of a storage, treatment, or disposal facility where operations are being or have been conducted after August 1, 1981, and is not a closed portion.

(6) "Actual dollar inpayments" means equal annual payments made by the facility owner into a long-term care account.

(7) "Acute hazardous waste" means a hazardous waste identified in s. NR 610.09.

(8) "Adsorption" means the condition in which one substance is attracted to and held on to the surface of another.

(9) "Alternate facility" means that hazardous waste facility which has been designated on a manifest pursuant to s. NR 615.08(4) as the facility where the hazardous waste may be taken in the event an emergency prevents delivery of the waste to the designated facility.

(10) "American petroleum institute (API) separator sludge" means sludge generated by an API separator used for primary petroleum refinery wastewater treatment.

(11) "Ancillary equipment" means any device including, but not limited to devices such as piping, fittings, flanges, valves and pumps, that are used to distribute, meter or control the flow of hazardous waste from its point of generation to a storage or treatment tank or tanks, between hazardous waste storage and treatment tank or tanks to a point of disposal on-site or to a point of shipment for disposal off-site.

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

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

(14) "Assets" means all existing and all probable future economic benefits obtained or controlled by a particular entity.

Note: Probable future economic benefits may include intangibles such as good will and rights to patents or royalties.

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

(16) "Authorized representative" means the person responsible for the overall operation of a facility, or part of a site or facility, such as a plant manager, superintendent or person of equivalent responsibility.

(17) "Authorized state" means a state that has been authorized by EPA under 42 USC 6926, and federal regulations promulgated under that section of the resource conservation and recovery act into Title 40, Part 271 of the Code of Federal Regulations, to administer a state hazardous waste program in place of all or part of the federal hazardous waste program in that state.

(18) "Beneficial use or reuse of a hazardous waste" means the use or reuse of hazardous waste as an ingredient or feedstock in production processes, the use of hazardous waste as a substitute for raw material in processes that usually use raw materials as feedstocks or using or reusing hazardous waste as a substitute for commercial chemical products. This term does not include burning or the legitimate recovery or reclamation of a hazardous waste.

(19) "Boiler" means an enclosed device using controlled flame combustion and having the following characteristics:

(a) The unit has physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids or heated gases; and

(b) The unit's combustion chamber and primary energy recovery sections are of integral design. To be of integral design, the combustion chamber and the primary energy recovery sections must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery sections are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design: process heaters and fluidized bed combustion units; and

Note: Examples of primary energy recovery sections include waterwalls and superheaters.

Note: Examples of secondary energy recovery equipment include economizers and air preheaters.

Note: Process heaters are units that transfer energy directly to a process stream.

(c) While in operation, the unit maintains a thermal energy recovery efficiency of at least 60%, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(d) The unit exports and utilizes at least 75% of the recovered energy, calculated on an annual basis. In this calculation, no credit may be given for recovered heat used internally in the same unit.

Note: Examples of internal use of recovered heat are the preheating of fuel or combustion air and the driving of induced or forced draft fans or feedwater pumps.

(20) "Bulk shipment by water" means the bulk transportation of hazardous waste which is loaded or carried on board a water vessel without containers or labels.

(21) "Burner" means an owner or operator of an industrial furnace or boiler as defined in subs. (19) and (105) that burns hazardous waste fuel.

(22) "By-product" means a material that is not one of the primary products of a production process and is not solely or separately produced by the production process.

Note: Examples of a by-product are process residues such as slags or scrap circuit boards. The term does not include a co-product that is produced for the general public's use and is ordinarily used in the form it is produced by the process. The term does not include refuse or sludge.

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

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

(25) "Certification" means a statement of professional opinion based upon knowledge and belief.

(26) "Clay" or "clay soil" means a soil which is a fine grain soil classified as CL or CH under the unified soil classification system specified in ASTM standard D-2487-69 (1975).

Note: The publication containing this standard may be obtained from:

The publication containing this standard is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(27) "Clean sweep program" means a program for the collection and disposal of household hazardous

waste.

(28) "Closed portion" means that portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements.

(29) "Closing" has the meaning specified under s. 144.43 (1m), Stats.

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

(31) "Closure cost estimate" means the most recent of the estimates prepared in accordance with s. NR 685.07(3).

(32) "Closure period" means the 60 day period after a facility ceases to accept waste for hazardous waste treatment and storage facilities and the 90 day period after a facility ceases to accept waste for hazardous waste land disposal facilities unless otherwise specified in the approved plan of operation.

(33) "Closure plan" means a written report, generally submitted with the plan of operation, detailing the measures that shall be taken by a hazardous waste facility owner or operator to ensure and effect proper closure.

(34) "COD" means chemical oxygen demand.

(35) "Combustion zone" means that portion of the internal capacity of an incinerator where the gas temperatures of the materials being burned are within 100°C of the specified operating temperature, and there is oxygen present in excess of the theoretical amount necessary to completely oxidize any combustible materials.

(36) "Commercial chemical product or manufacturing chemical intermediate" means a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not mean a waste, such as a manufacturing process waste, that contains any of the substances listed in chapter NR 605, table IV or V. Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in chapter NR 605, table IV or V, the waste shall be listed in s. NR 605.09(2), or shall be identified as a hazardous waste by the characteristics in s. NR 605.08.

(37) "Commercial facility" means a facility providing hazardous waste management services to persons other than the owner or operator for the purpose of making a profit.

(38) "Company" has the meaning specified under s. 144.443(1)(b), Stats.

(39) "Consignee" means the ultimate treatment, storage or disposal facility in a receiving country to which the hazardous waste will be sent.

(40) "Construct" means to engage in a program of on-site construction including but not limited to the erection or building of new structures, replacement, expansion, remodeling, alteration or extension of existing structures, the acquisition and installation of initial equipment associated with the new or expanded, remodeled structures, and site clearing, grading, dredging or landfilling.

(41) "Construction observation report" means a written report submitted under the seal of a registered professional engineer advising that a hazardous waste facility has been constructed in substantial compliance with a department approved plan of operation.

(42) "Container" means any portable enclosure in which a material is stored, transported, treated, disposed of or otherwise handled.

(43) "Contingency plan" means a document setting out an organized, planned and coordinated course of action to be followed in the event of a fire, explosion or discharge of hazardous wastes or hazardous waste constituents into the environment which has the potential for endangering human health or the environment.

(44) "Corrective action" has the meaning specified under s. 144.735(1)(a), Stats.

(45) "Corrosion expert" means a person who has acquired a knowledge of the physical sciences and the principles of engineering and mathematics through professional education and related practical experience and who is qualified to practice corrosion control on buried or submerged metal piping systems and metal tanks. The qualified person shall be certified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification or licensing including education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

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

(47) "Current assets" means cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

(48) "Current liabilities" means obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities.

(49) "Department" means the Wisconsin department of natural resources.

(50) "Design capacity" means the total design volume of a facility and in the case of a treatment or disposal facility includes the volume of waste and daily or intermediate cover, but does not include final cover or topsoil.

(51) "Designated facility" means a hazardous waste facility or recycling facility that has received a license under chs. NR 600 to 699, which has been permitted by EPA or which has been permitted by a state authorized by EPA under 42 USC 6926 and which has been designated on a manifest by the generator pursuant to s. NR 615.08 as the facility where the hazardous waste shall be taken unless an emergency prevents delivery to that facility.

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

(53) "Dike" means an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids or other materials.

(54) "Discharge" has the meaning specified under s. 144.76(1)(a), Stats.

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

(56) "Disposal" has the meaning specified under s. 144.61(3), Stats.

(57) "Disposal facility" means a facility or part thereof where hazardous waste disposal occurs and where the waste will remain after closure.

(58) "DOT" means the United States department of transportation.

(59) "DOT identification number" means the hazardous materials identification number assigned by the DOT, in 49 CFR 172.101 and 172.102, November 1, 1985.

(60) "Elementary neutralization unit" means a device which:

(a) Is used for neutralizing wastes that are hazardous wastes only because they exhibit the corrosivity characteristic U. S. that meet the criteria in s. NR 605.08(3) or they are listed in s. NR 605.09 only for this reason; and

(b) Meets the definition of tank in sub. (204), tank system in sub. (205), container in sub. (42), transport vehicle in sub. (214) or vessel in sub. (236).

(61) "EPA" means the United States environmental protection agency.

(62) "EPA acknowledgement of consent" means the cable sent to EPA from the U.S. embassy in a receiving country that acknowledges the written consent of the receiving country to accept the hazardous waste and describes the terms and conditions of the receiving country's consent to the shipment.

(63) "EPA administrator" means the administrator of the EPA or anyone designated to act for the administrator of the EPA.

(64) "EPA hazardous waste number" means the number assigned by EPA to each hazardous waste listed in 40 CFR Part 261, Subpart D and to each characteristic identified in 40 CFR Part 261, Subpart C.

(65) "EPA identification number" means the number assigned by EPA to each generator, transporter, and treatment, storage or disposal facility.

(66) "Equal annual outpayments" means estimated payments for long-term care which are the same amount in each year of the period of owner responsibility for the long-term care of the facility.

(67) "Equivalent method" means any testing or analytical method approved by the department under ss. NR 635.12(10)(c) and 680.04.

(68) "Existing tank system" or "existing tank system component" means a tank system or tank system component that is used for the storage or treatment of hazardous waste and that is in operation, or for which installation has commenced on or prior to [the effective date of this rule: revisor insert date]. Installation shall be considered to have commenced if the owner or operator has obtained all federal, state and local approvals, licenses or permits necessary to begin physical construction of the site or installation of the tank system and if either;

(a) A continuous on-site physical construction or installation program has begun, or

(b) The owner or operator has entered into a contract, which may not be cancelled or modified without substantial loss, for physical construction of the site or installation of the tank system to be completed within a reasonable time.

(69) "Existing hazardous waste management facility" or "existing facility" means a facility which was in operation or for which construction commenced on or before November 19, 1980. A facility has commenced construction if:

(a) The owner or operator has obtained the federal, state and local approvals or licenses necessary to begin construction; and either

(b)1. A continuous on-site, physical construction program has begun; or

2. The owner or operator has entered into contractual obligation, which cannot be cancelled or modified without substantial loss, for construction of the facility to be completed within a reasonable time.

(70) "Facility" means all contiguous land and structures, other appurtenances, and improvements on the land used for treating, storing or disposing of hazardous waste. A facility may consist of several treatment, storage or disposal operating units.

(71) "Fault" means a fracture along which rocks on one side have been displaced with respect to those on the other side.

(72) "Feasibility report" means a report for a specific hazardous waste facility that describes the facility, surrounding area, and proposed operation in terms of land use, topography, soils, geology, groundwater, surface water, proposed waste quantities and characteristics, preliminary facility design concepts and any anticipated environmental impacts.

(73) "Feasibility and plan of operation report" means a single report which may be required by the department under s. 144.44(3)(am), Stats., for hazardous waste storage and treatment facilities that includes the elements of both a feasibility report and a plan of operation.

(74) "Final closure" means the closure of all hazardous waste management units at a facility in accordance with the approved facility closure plan and all applicable closure requirements under chs. NR 600 to 685, so that hazardous waste management under s. NR 600.04 and chs. NR 630 to 685 is no longer conducted at a facility, but does not include long-term care and financial responsibility requirements.

(75) "Final cover" means cover material that is applied upon closure of a hazardous waste disposal facility or unit and is permanently exposed at the surface.

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

(77) "Fluid" means any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas regardless of its form or state.

(78) "Food-chain crops" means tobacco, crops grown for human consumption and crops grown for feed for animals whose products are consumed by humans.

(79) "FR" means the federal register.

(80) "Freeboard" means the vertical distance between the top of a tank or surface impoundment dike and the surface of the waste contained therein.

(81) "Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure. To demonstrate the absence or presence of free liquids, the EPA test method 9095, the paint filter liquids test, described in SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985, shall be used.

Note: This publication may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office

Washington, D.C. 20402

This publication is available for inspection at the offices of the department, the secretary of state, and the revisor of statutes.

(82) "Generation" has the meaning specified in s. 144.61 (4), Stats.

(83) "Generator" means any person, by generation site, whose act or process produces a hazardous waste identified or listed in chs. NR 605, 610 and 625 or whose act first causes a hazardous waste to become subject to regulation under chs. NR 600 to 685.

(84) "Groundwater" means water in a saturated zone beneath the land surface.

(85) "Halogenated organic compounds" or "HOC" means those compounds having a carbon-halogen bond which are listed under appendix III to ch. NR 675.

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

(87) "Hazardous waste" or "waste" means a solid waste that fits the definition of hazardous waste in s. NR 605.04, and is not excluded by the provisions of s. NR 605.05.

(88) "Hazardous waste boundary" means, for disposal facilities, the outermost perimeter of the hazardous waste projected in the horizontal plane as would exist at the completion of the disposal activity or, for storage or treatment facilities, the outermost boundary of hazardous waste storage or treatment.

(89) "Hazardous waste constituent" or "hazardous constituent" means a constituent which caused the department to list a hazardous waste in s. NR 605.09, or a contaminant listed in Table I in s. NR 605.08.

(90) "Hazardous waste facility" has the meaning specified under s. 144.61(5m), Stats.

(91) "Hazardous waste fuel" means hazardous waste burned for energy recovery and fuel produced from hazardous waste by processing, blending or other treatment.

(92) "Hazardous waste management" has the meaning specified under s. 144.61(6), Stats.

(93) "Hazardous waste management unit", "operating unit" or "regulated unit" means a contiguous area of land on or in which hazardous waste is placed or the largest area in which there is significant likelihood of mixing hazardous waste constituents. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

Note: Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area.

(94) "Hazardous waste number" means the number assigned to each hazardous waste listed in s. NR 605.09 and to each characteristic identified in s. NR 605.08.

(95) "Holocene" means the most recent epoch of the quaternary period, extending from the end of the pleistocene to the present.

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

(97) "Hydraulic gradient" means the change in hydraulic pressure per unit of distance in a given direction.

(98) "Hydrogeologist" means a person who is a graduate of an accredited institution of higher education and who has successfully completed 30 semester hours or 45 quarter hours of course work in geology. At least 6 semester hours or 9 quarter hours of the geology course work shall be in hydrogeology, geohydrology or groundwater geology. This person shall also have acquired through education and field experience, the ability to direct the drilling of borings and the installation and development of wells, describe and classify geologic samples and evaluate and interpret geologic and hydrogeologic data.

(99) "In operation" means a facility which is treating, storing or disposing of hazardous waste.

(100) "Identification number" means the unique number assigned to each generator, transporter or treatment, storage or disposal facility. This identification number is identical to the EPA identification number assigned by the EPA to each generator, transporter or treatment, storage or disposal facility.

(101) "Incinerator" means an enclosed device using controlled flame combustion that is not a boiler or an industrial furnace.

(102) "Incompatible waste" means a hazardous waste which is unsuitable for:

(a) Placement in a particular device, site or facility because it may cause corrosion or decay of containment materials, such as the container, inner liners or tank walls.

(b) Commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes or gases, or flammable fumes or gases.

(103) "Independently audited" means an audit performed by an independent certified public accountant in accordance with generally accepted auditing standards.

(104) "Individual generation site" means the contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of hazardous waste but is considered a single or individual generation site if the site or property is contiguous.

(105) "Industrial furnace" means any of the following enclosed devices that are integral components of manufacturing processes and use controlled flame combustion to accomplish recovery of materials or energy:

(a) Cement kilns;

(b) Lime kilns;

(c) Aggregate kilns;

(d) Phosphate kilns;

(e) Blast furnace;

(f) Smelting furnaces;

(g) Methane reforming furnaces;

(h) Combustion devices used in the recovery of sulfur values from spent sulfuric acid;

- (i) Pulping liquor recovery furnaces;
- (j) Coke ovens; and
- (k) Titanium dioxide chloride process oxidation reactors.

Note: The department may decide to add devices to this list on the basis of one or more of the following factors:

- (1) The device is designed and used primarily to accomplish recovery of material products;
- (2) The device burns secondary materials as ingredients in an industrial process to make a material product;
- (3) The device burns secondary materials as effective substitutes for raw materials in processes using raw materials as principal feed stocks;
- (4) The device burns raw materials to make a material product;
- (5) The device is in common industrial use to produce a material product;
- (6) Other factors, as appropriate.

(106) "Inground tank" means a tank where a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

(107) "Injection" means the subsurface emplacement of a fluid or waste.

(108) "Inner liner" means a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained wastes or reagents used to treat the waste.

(109) "Installation inspector" means a person who has acquired knowledge of the physical sciences and the principles of engineering through a professional education and related practical experience and is, therefore, qualified to supervise the installation of tank systems.

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

(111) "International shipment" means the transportation of hazardous waste into or out of the jurisdiction of the United States.

(112) "Land disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes.

(113) "Land treatment" means the application of waste onto the soil surface or into the soil surface through incorporation. This term does not include the placement of waste in a landfill cell.

(114) "Land treatment facility" means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; these facilities are disposal facilities if the waste will remain after

closure.

(115) "Landfill" means a disposal facility, or part of a disposal facility, where hazardous waste is placed in or on land and which is not a waste pile, a surface impoundment, a land treatment facility, an underground injection well, a salt dome formation, a salt bed formation, an underground mine or a cave.

(116) "Landfill cell" means a discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes.

Note: Examples of landfill cells are trenches and pits.

(117) "LC50" means the median lethal concentration which is the statistical estimate of the concentration of a substance in air or water necessary to kill 50% of test organisms within a specified time under standardized conditions.

(118) "LD50" means the median lethal dose which is the statistical estimate of the dosage of a substance necessary to kill 50% of an infinite population of test animals as determined from exposure to the substance, by any route other than inhalation, of a significant number from that population.

(119) "Leachate" means any liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste.

(120) "Leachate collection and removal system" means a system capable of collecting leachate or other liquids generated within a hazardous waste landfill, and removing the leachate or other liquids from the landfill. The system is placed or constructed above a landfill liner system.

(121) "Leachate monitoring system" means a system within a facility used to monitor leachate or other liquids generated within a hazardous waste landfill. The system is placed or constructed above the landfill liner system.

Note: One example of a leachate monitoring system is a leachate head well.

(122) "Leak detection system" means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure and which employs operation controls, such as daily visual inspections for releases into the secondary containment system of above ground tanks, or consists of an interstitial monitoring device designed to continuously and automatically detect the failure of the tank system or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

(123) "Legal defense costs" means any expenses that an insurer incurs in defending against claims of third parties brought under the terms and conditions of an insurance policy.

(124) "Legitimate recovery or reclamation of a hazardous waste" means the regeneration of a hazardous waste to remove contaminants so that the waste may be put to further use, the processing of a hazardous waste to recover usable materials or the regeneration of waste to its original form. This term does not include the burning or beneficial use or reuse of a hazardous waste.

Note: Examples of legitimate recovery or reclamation are solvent recovery stills and metal recovery units, such as silver recovery from photographic waste.

(125) "Liabilities" means probable future sacrifices of economic benefits arising from present obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.

(126) "Licensee" means the person responsible for compliance with any conditions which are a part of any license issued under chs. NR 600 to 685.

(127) "Liner" means a continuous layer of natural or man-made materials beneath and on the sides of a waste pile, surface impoundment, landfill or landfill cell, which restricts the downward or lateral escape of hazardous waste, hazardous waste constituents or leachate.

(128) "Local approval" has the meaning specified under s. 144.445(3)(d), Stats.

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

(130) "Long-term care cost estimate" means the most recent of the estimates prepared in accordance with s. NR 685.07(4).

(131) "Long-term compatibility testing" means testing of the liner which continues for the life of the facility, including the entire period of long-term care.

(132) "Manifest" is defined in s. 144.61(8), Stats. For the purpose of chs. NR 600 to 685, "manifest" means the shipping document state of Wisconsin form 4400-66 or EPA form 8700-22 and, if necessary, EPA form 8700-22A, originated and signed by the generator in accordance with the requirements of s. NR 615.08.

(133) "Manifest discrepancy" means the differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste a facility actually receives.

Note: See also s. NR 600.03(186) for the definition of "significant manifest discrepancy".

(134) "Manifest document number" means the EPA identification number assigned to the generator plus a unique 5 digit document number assigned to the manifest by the generator for recording and reporting purposes.

(135) "Marking" means applying the DOT descriptive name, instructions, cautions, weight or specification marks or combinations thereof required by chs. NR 600 to 685 to be placed upon the outside of containers of hazardous waste.

(136) "Miscellaneous unit" means a hazardous waste management unit where hazardous waste is treated, stored or disposed of and that is not a unit eligible for a research, development and demonstration license under ch. NR 680, a container, tank, surface impoundment, waste pile, landfill, incinerator, boiler or industrial furnace.

(137) "Monitoring" means all procedures used to systematically inspect and collect data on operating characteristics of a facility or on the quality of the air, groundwater, surface water or soils.

(138) "Movement" means hazardous waste that is transported to a facility in an individual vehicle.

(140) "Net working capital" means current assets minus current liabilities.

(141) "Net worth" has the meaning specified under s. 144.443(1)(c), Stats.

(142) "New tank system" or "new tank system component" means a tank system or tank system component that shall be used for the storage or treatment of hazardous waste and for which installation has commenced after [the effective date of this rule: revisor insert date] except, however, for purposes of s NR 645.09(7), a new aboveground, inground or onground tank system is one for which construction commences

after [the effective date of this rule: revisor insert date]

Note: Tanks and tank systems that are owned or operated by small quantity generators or tank systems and tank system components which are underground and non-enterable for inspection, which construction or installation commenced between July 14, 1986 and [revisor. .insert the effective date of this rule], are subject to the provisions in 40 CFR 264, Subpart J or 40 CFR 265, Subpart J.

(143) "Non-approved facility" has the meaning specified under s. 144.441(1)(c), Stats.

(144) "Non-commercial facility" means a privately operated hazardous waste management facility managing its own waste or wastes from another corporation under common ownership or control.

(145) "Non-interest bearing accounts" means letters of credit or performance or forfeiture bonds.

(146) "Non-hazardous solid waste" means solid waste which is also not a hazardous waste.

(147) "Nonpoint source" means a source from which pollutants emanate in an unconfined and unchannelled manner, including, but not limited to, the following:

(a) For water effluent, "nonpoint source" has the meaning specified under s. 144.25 (2)(b), Stats.

(b) For nonpoint sources of air contaminant emissions, this includes any landfills or surface impoundments.

(148) "Nonsudden accidental occurrence" means an accidental occurrence which takes place over time and involves continuous or repeated exposure.

(149) "Onground tank" means a tank that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

(150) "On-site" means on the same or geographically contiguous property which may be divided by public or private right-of-way, provided the entrance and exit between the properties is at a crossroads intersection, and access is by crossing, as opposed to going along, the right-of-way. Non-contiguous properties owned by the same person, but connected by a right-of-way which the person controls and to which the public does not have access, is also considered on-site property.

(151) "Open burning" means the combustion of any material without the following characteristics:

(a) Control of combustion air to maintain an adequate temperature for efficient combustion;

(b) Containment of the combustion reaction in an enclosed device to provide sufficient residence time and turbulence for complete combustion; and

(c) Control of emission of the gaseous combustion products.

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

(153) "Owner" means the person who owns a hazardous waste facility or recycling facility, or part of a hazardous waste facility or recycling facility.

(154) "Parent corporation" means a corporation which directly holds at least 50% of the voting stock of the corporation which is the facility owner or operator; the latter corporation is deemed a "subsidiary" of the

parent corporation.

(155) "Partial closure" means the closure of a unit, hazardous waste management unit, operating unit or regulated unit at a facility that contains other units in accordance with the applicable closure requirements of chs. NR 600 to 685.

Note: Partial closure may include the closure of a particular unit, such as a landfill cell or trench, while other parts of the same facility continue to operate.

(156) "Person" has the meaning specified under s. 144.61(9), Stats. In addition person means any trust, firm, joint stock company, state commission, political subdivision and interstate body.

(157) "Personnel" or "facility personnel" means all persons who work at or oversee the operations of a hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements of chs. NR 600 to 685.

(158) "Pile" means any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage.

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

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

(161) "Polychlorinated biphenyls" or "PCBs" has the meaning specified under s. 144.79(1), Stats.

(162) "Polychlorinated biphenyls waste" or "PCB waste" has the meaning specified under s. 144.44(9)(a)3., Stats.

(163) "POHC" means a principal organic hazardous constituent.

(164) "Point source" means any discernible, confined and discrete conveyance, including, but not limited to, the following:

(a) For water effluent, "point source" has the meaning specified under s. 147.015(12), Stats.; and

(b) For air contaminant emissions, any stack, duct or vent from which pollutants are or may be discharged.

(165) "Primary exporter" means any person who is required to originate the manifest for a shipment of hazardous waste in accordance with s. NR 615.08, which specifies a treatment, storage or disposal facility in a receiving country as the facility to which the hazardous waste shall be sent and any intermediary arranging for the export.

(166) "Proof of financial responsibility" means a bond, deposit or proof of an established escrow account, trust account or other proof of financial responsibility satisfactory to the department ensuring that sufficient funds shall be available to comply with the closure and long-term care requirements of chs. NR 600 to 685 and the approved plan of operation.

(167) "Publicly owned treatment works" or "POTW" means any device or system used in the treatment, including recycling and reclamation, of municipal sewage or industrial wastes of a liquid nature which is owned by the state or a municipality. This definition includes sewers, pipes or other conveyances only if they convey wastewater to a POTW providing treatment.

(168) "Real dollar inpayments" means payments made by the facility owner which increase each year at the rate of inflation, into a long-term care account.

(169) "Receiving country" means a foreign country to which a hazardous waste is sent for the purpose of treatment, storage or disposal, except short-term storage incidental to transportation.

(170) "Recharge zone" means an area through which water enters an aquifer.

(171) "Recycling" means the beneficial use, reuse or legitimate recovery or reclamation of a hazardous waste. Recycling includes the recovery of energy from hazardous waste.

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

(173) "Regional" means the area which may affect or be affected by the proposed facility site. In most instances the area which may affect or be affected by the proposed facility site will be the proposed facility site and the area within a one mile radius.

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

(175) "Release" has the meaning specified under s. 144.735(1)(b), Stats.

(176) "Reporting quarter" means the 3 month time period covered by each quarterly report. The reporting quarters end on the last day of March, June, September and December.

(177) "Representative sample" means any sample of a universe or whole, such as groundwater or hazardous waste, which may be expected to exhibit the average properties of the universe or whole. Methods for obtaining representative samples of hazardous wastes are given in ch. NR 605, appendix I.

(178) "Resource conservation and recovery act" or "RCRA" has the meaning specified under s. 144.61(9m), Stats.

(179) "Retention time" means the time hazardous waste is subjected to the combustion zone in an incinerator.

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

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

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

(183) "Schedule of compliance" means a schedule of remedial measures including an enforceable sequence of interim requirements leading to compliance with the requirements of chs. NR 600 to 685.

(184) "Scrap metal" means bits and pieces of metal parts or metal pieces that may be combined together with bolts or soldering, which when worn or superfluous can be recycled.

Note: Examples of scrap metal are bars, turnings, rods, sheets, wire, radiators, scrap automobiles and railroad box cars.

(185) "Short-term compatibility testing" means testing which is performed in the laboratory and

continues for a minimum of 180 days.

(186) "Significant manifest discrepancy" means:

(a) Discrepancies in quantity that are equal to or greater than 10% in weight for bulk shipments or any variation in piece count, such as a discrepancy of one drum in a truckload for batch shipments of waste; or

(b) Discrepancies in type that are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

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

(188) "Small quantity generator" means a person who generates less than 1,000 kilograms (2,205 pounds) of hazardous waste in a calendar month and does not accumulate at any time quantities of hazardous waste greater than 6,000 kilograms (13,230 pounds).

(189) "Solid waste" has the meaning specified under s. 144.01(15), Stats.

Note: The domestic sewage exemption in the definition of "solid waste" applies to non-domestic waste once mixed with sanitary wastes in a sewer system leading to a POTW. An industrial waste stream that never mixes with sanitary wastes in the sewer prior to storage or treatment does not fall within the exemption.

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

(191) "Solid waste management unit" has the meaning specified under s. 144.735(1)(c), Stats.

(192) "Speculative accumulation" means materials that are accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year, commencing on January 1, the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period. In calculating the percentage of turnover, the 75 percent requirement is to be applied to each material of the same type, such as slags from a single smelting process, that is recycled in the same way, such as from which the same material is recovered or that is used in the same way. Materials accumulating in units that would be exempt from regulation under s. NR 605.05(2) are not to be included in making the calculation. Materials that are already defined as solid wastes also are not to be included in making the calculation. Materials are no longer in this category once they are removed from accumulation for recycling, however.

(193) "Spent material" means any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

(194) "State agency" means any department, board, commission, bureau or institution of state government, including the university of Wisconsin system.

(195) "Storage" has the meaning specified under s. 144.61(10), Stats. In addition, storage means the holding of hazardous waste for a temporary period, at the end of which period the hazardous waste is to be stored elsewhere.

(196) "Storage facility" means a facility, or part of a facility, which stores hazardous waste, except for a

generation site where a generator stores its own waste in compliance with s. NR 610.08(1)(l) or 615.05, or a transfer facility.

(197) "Subsidiary" means a corporation whose voting stock is at least 50% held by a parent corporation.

(198) "Substantial business relationship" means the extent of a business relationship necessary under to make a guarantee contract issued incident to that relationship valid and enforceable. A substantial business relationship shall arise from a pattern of recent or ongoing business transactions, in addition to the guarantee itself, such that a currently existing business relationship between the guarantor and the owner or operator is demonstrated to the satisfaction of the department.

(199) "Sudden accidental occurrence" means an accidental occurrence which is not continuous or repeated in nature.

(200) "Sump" means any pit or reservoir that meets the definition of tank at sub. (204) and those troughs or trenches connected to it that serve to collect hazardous waste for transportation to hazardous waste treatment, storage or disposal facilities.

(201) "Surface impoundment" has the meaning specified in s. 144.735(1)(d), Stats.

(202) "Tangible assets" has the meaning specified in s. 144.443(1)(f), Stats.

(203) "Tangible net worth" means the tangible assets that remain after deducting liabilities; the assets would not include intangibles such as good will and rights to patents or royalties.

(204) "Tank" means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of nonearthen materials, such as wood, concrete, steel or plastic which provides structural support.

Note: Other unit operations, such as presses, filters, sumps and other types of processing equipment may be tanks.

(205) "Tank system" means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

(206) "Tank system component" means either the tank or ancillary equipment of a tank system.

(207) "Termination" has the meaning specified under s. 144.43(8), Stats.

(208) "Thermal treatment" means the treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical or biological character or composition of the hazardous waste.

Note: Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation and microwave discharge.

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

(210) "Totally enclosed treatment facility" means a facility for the treatment of hazardous waste which is directly connected to a production process and which is constructed and operated in a manner which is designed to prevent the discharge of any hazardous waste or constituent thereof into the environment during treatment.

Note: Examples of totally enclosed treatment facilities are pipelines, tanks, stills, distillation columns and pressure vessels which are completely contained on all sides. Another example is a pipe in which acid is neutralized.

(211) "Transfer facility" means any transportation related facility including loading docks, parking areas, storage areas and other similar areas where shipments of hazardous waste are held during the normal course of transportation in compliance with s. NR 620.14.

(212) "Transit country" means any foreign country, other than a receiving country, through which a hazardous waste is transported.

(213) "Transport" is defined in s. 144.61(12), Stats. For the purpose of chs. NR 600 to 685, "transport" means the movement of hazardous wastes from generation sites or between hazardous waste facilities which are subject to or require a license under chs. NR 600 to 685 or under the resource conservation and recovery act.

(214) "Transport vehicle" means a motor vehicle or rail car, used for the transportation of cargo by any mode. Each cargo carrying body, such as a trailer or railroad car, is a separate transport vehicle.

(215) "Transportation service" means a service engaged in the off-site transport of hazardous waste by air, rail, highway or water.

(216) "Transporter" means the owner or operator of a transportation service licensed under ch. NR 620 and s. 144.64(1), Stats.

(217) "Treatability study" means:

(a) A study in which hazardous waste is subjected to a treatment process to determine:

1. Whether the waste is amenable to the treatment process,
2. What pretreatment, if any, is required,
3. The optimal process conditions needed to achieve the desired treatment,
4. The efficiency of a treatment process for a specific waste or wastes, or
5. The characteristics and volumes of residuals from a particular treatment process.

(b) Also included in this definition for the purpose of the s. NR 605.05(4) and (5) exemptions are liner compatibility, corrosion and other material compatibility studies and toxicological and health effects studies. A treatability study is not a means to commercially treat or dispose of hazardous waste.

(218) "Treatment" has the meaning specified under s. 144.61(13), Stats. In addition, treatment includes any method, technique or process, including neutralization, which follows generation and which is designed to change the physical, chemical or biological character or composition of any hazardous waste so as to render the waste less hazardous.

(219) "Treatment facility" has the meaning specified under s. 144.61(14), Stats.

(220) "Triple rinsed" means that a container has been flushed 3 times, each time using a volume of diluent at least equal to 10% of the container's capacity.

(221) "24-hour, 25-year storm" means a storm of 24-hour duration with a probable recurrence interval of once in 25 years as determined under s. NR 205.05.

(222) "Underground injection" means the subsurface emplacement of fluids through a bored, drilled or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension.

Note: See also the definition of "injection" in sub. (107).

(223) "Underground tank" means a tank whose entire surface area is totally below the surface of and covered by the ground.

(224) "Unequal annual outpayments" means estimated payments for long-term care which are higher in the early years of the period of owner responsibility for long-term care than they are later in the long-term period care after the facility has stabilized.

(225) "Unfit-for-use tank system" means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

(226) "Unit" means either a hazardous waste management unit as defined in sub. (93) or a solid waste management unit as defined in sub. (191).

(227) "United States" means the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa and the Commonwealth of the Northern Mariana Islands.

(228) "Unsaturated zone" means the zone between the land surface and the nearest saturated zone, in which the interstices are occupied partially by air.

(229) "Unsaturated zone monitoring system" means a system beneath a facility used to monitor water quality in the unsaturated zone as necessary to detect leaks from landfills and surface impoundments.

Note: An example of a system is a pressure-vacuum lysimeter.

(230) "Uppermost aquifer" means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

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

(232) "U.S. government securities" includes treasury bills, treasury bonds, treasury certificates, treasury notes, treasury stocks or other obligations guaranteed by the federal government.

(233) "Used oil" has the meaning specified under s. 144.50(1)(a), Stats.

(234) "Used oil fuel" has the meaning specified under s. 144.50(1)(b), Stats.

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

(236) "Vessel" means any description of watercraft, used or capable of being used as a means of transportation on the water.

(237) "Waste boundary" has the meaning in s. NR 140.22(5)(a).

(238) "Wastewater treatment unit" means a device which:

(a) Is part of a wastewater treatment facility that is subject to regulation under ch. 147, Stats.; and

(b) Receives and treats or stores an influent wastewater that meets the criteria for hazardous waste in s. NR 605.04, or generates and accumulates a wastewater treatment sludge that meets the criteria for hazardous waste in s. NR 605.04 or treats or stores a wastewater treatment sludge that is a hazardous waste as defined in s. NR 605.04; and

(c) Meets the definition of tank in sub. (204) or tank system in sub. (205).

Note: Certain wastewater treatment sludge management units may be considered wastewater treatment units under this definition. For example, plate and frame filter presses, belt presses and dryers that treat or generate sludges that are hazardous wastes may be wastewater treatment units.

(239) "Water table" means the upper surface of the saturation zone in groundwaters where the hydrostatic pressure is equal to atmospheric pressure.

(240) "Well" means a bored, drilled or driven shaft, or a dug hole where the depth of the dug hole is greater than the largest surface dimension, and which is terminated above, within or below an aquifer.

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

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

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

(244) "Zone of engineering control" means an area, under the control of an owner or operator that, upon detection of a hazardous waste release, can be readily cleaned up prior to the release of hazardous waste or hazardous constituents to ground water or surface water.

NR 600.04 PROHIBITED ACTIVITIES. (1) Underground injection of any hazardous waste through a well is prohibited.

Note: Section NR 112.20 prohibits the use of any well for the disposal of solid wastes, sewage, surface water or wastewater.

(2) Land treatment of any hazardous waste is prohibited.

(3) The use of solid waste, used oil or other material which is contaminated or mixed with any hazardous waste for dust suppression or road treatment is prohibited. The use of solid waste, used oil or other material which meets the criteria for hazardous waste under s. NR 605.04, for dust suppression or road treatment is prohibited.

(4) The placement of any noncontainerized or bulk hazardous waste in any salt dome formation, salt bed formation, underground mine or cave is prohibited.

NR 600.05 NOTIFICATION OF HAZARDOUS WASTE ACTIVITIES. (1) **EXISTING ACTIVITIES.** Any person who on or after August 1, 1981, generates or transports hazardous waste, or owns or operates a recycling facility or a facility for the treatment, storage or disposal of a hazardous waste, shall, within 90 days of the effective date of the applicable rule, notify the department and EPA of the activities, unless that person has previously notified the EPA in compliance with the preliminary notification requirements of 42 USC 6930, or is otherwise exempted from this requirement under s. NR 610.05(1).

(2) **NEW ACTIVITIES.** Any person who will generate or transport hazardous waste, or any person who will own or operate a recycling facility or a facility for the treatment, storage or disposal of hazardous waste shall, notify the department and EPA at least 30 days prior to the initiation of these activities, unless the person is otherwise exempted from this requirement under s. NR 610.05(1).

Note: Chapter NR 610 does not exempt small quantity generators who recycle, treat or dispose of their waste on-site from the notification requirements of this section. The generators are considered owners or operators of a recycling, treatment or disposal facility under chs. NR 600 to 685.

(3) **SEPARATE FORMS REQUIRED.** Separate notification forms shall be submitted to the department and EPA in accordance with sub. (1) or (2) for each generation site, transportation service, recycling facility and hazardous waste facility.

Note: In order to obtain an identification number, a notification form shall be filed in accordance with this section.

(4) **CONTENTS OF NOTIFICATION FORM.** The notification form shall be provided by the department upon request and shall contain the following information:

(a) The name of the generation site, transportation service or facility.

(b) The mailing address of the generation site, transportation service, or facility.

(c) The location of the generation site, transportation service or facility.

(d) The name and telephone number of a responsible individual at the generation site, transportation service or facility who can be contacted for clarification of information submitted in the notification.

(e) The name of the operator and the owner of the generation site, transportation service or facility.

(f) The types of hazardous waste activity conducted, such as:

1. The generation, transportation, treatment, storage or disposal of hazardous waste either on the site of hazardous waste generation or off-site.

2. Used oil fuel activities.

(g) The type of combustion device for waste fuel burning.

(h) The mode of transportation.

(i) Whether this is the first, or a subsequent, notification of hazardous waste activities.

(j) A description of the hazardous wastes generated, transported, treated, stored or disposed.

1. For hazardous wastes from non-specific sources, the hazardous waste number from table II in s. NR

605.09(2)(a) for each listed hazardous waste.

2. For hazardous wastes from specific sources, the hazardous waste number from table III in s. NR 605.09(2)(b) for each listed hazardous waste.

3. For commercial chemical product hazardous wastes, the hazardous waste number from tables IV and V in s. NR 605.09(3)(b) and (c) for each chemical substance listed.

4. For non-listed hazardous wastes, the hazardous waste number from s. NR 605.08 for each ignitable, corrosive, reactive or toxic waste as determined under s. NR 605.08.

(k) A certification stating "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submittal information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment", shall be signed by the owner or operator, or an authorized representative, of the generation site, transportation service or facility.

Note: The notification form may be obtained from the Department of Natural Resources, P.O. Box 8094, Madison, Wisconsin 53708 at no charge.

NR 600.06 CONFIDENTIALITY OF INFORMATION. (1) Except as provided under sub. (2), any records, reports or other information furnished to or obtained by the department in the administration of ss. 144.60 to 144.74, Stats., are public records subject to the provisions of ss. 19.31 to 19.39, Stats., and s. NR 2.195.

(2) If confidential status is sought for records, reports or other information furnished to or obtained by the department under ss. 144.60 to 144.74, Stats., the standards and procedures in s. 144.70, Stats., and s. NR 2.19 shall be applied.

(3) Except for emission data, the name and address of any person applying for a license under chs. NR 600 to 685, or a licensee, for which the department may not grant confidential status, the department shall grant confidential status for any records, reports or other information received by the department and certified by the owner or operator of the facility to be related to production or sales figures or to processes or production unique to the owner or operator or which would tend to adversely affect the competitive position of the owner or operator if made public.

(4) Records, reports and other information that have been granted confidential status:

(a) May be used by the department in compiling or publishing analyses or summaries relating to the general condition of the environment if the analyses or summaries do not identify a specific owner or operator or the analyses or summaries do not reveal records or other information granted confidential status; and

(b) May be released by the department to the EPA or its authorized representative, if the department includes in each release of records, reports or other information a request to EPA or its authorized representative to protect the confidentiality of the records, reports or other information;

(c) May be released for general distribution if the owner or operator expressly agreed to the release; and

(d) May be released on a limited basis if the department is directed to take this action by a judge or

hearing examiner under an order which protects the confidentiality of the records, reports or other information.

NR 600.07 SPECIAL REQUIREMENTS WHERE A DISCHARGE HAS OCCURRED OR IS LIKELY TO OCCUR. (1) The department may require any owner or operator of a recycling facility, or other hazardous waste facility which is otherwise not required to comply with the requirements of chs. NR 630 to 675 and the plan review and licensing requirements of ch. NR 680, to comply with all or part of the requirements of ch. NR 680 where compliance with the requirements is necessary to protect public health, safety or welfare or the environment, if the department determines that:

(a) Hazardous waste or hazardous waste constituents have been discharged at the facility; or

(b) Existing control measures are inadequate to prevent a discharge of hazardous waste or hazardous constituents at the facility.

(2) The department may require any generator or transporter to comply with all or part of the requirements of s. NR 600.04 and chs. NR 630 to 685 where compliance with the requirements is necessary to protect public health, safety or welfare or the environment, if the department determines that:

(a) Hazardous waste or hazardous waste constituents have been discharged since May 20, 1978 at the generation site or transportation service location; or

(b) Existing control measures are inadequate to prevent a discharge at the generation site or transportation service location.

NR 600.08 REVIEW TIME PERIODS. Except as otherwise provided in chs. NR 600 to 685, the department shall review, and approve, deny or deem incomplete, requests for approvals or exemptions within 65 business days after receiving the request.

Note: Saturdays, Sundays and those holidays designated in s. 230.35 (4)(a), Stats., are not included in counting business days. Sixty-five business days is roughly equivalent to 90 calendar days.

Many of the review time periods in chs. NR 600 to 685 are specified in "days," i.e. calendar days, instead of business days, because ch. 144, Stats., specifies several review time periods in calendar days. It is not possible to specify all the review time periods in chs. NR 600 to 685 in calendar days, however, because of s. 227.116, Stats., requires that review time periods which were not established by statute or rule prior to November 17, 1983, be specified in business days.

NR 600.09 WAIVERS. Notwithstanding any other provision in chs. NR 600 to 685, in the event of an emergency condition threatening public health, safety or welfare or the environment, the department may issue a waiver to allow treatment, storage or disposal of hazardous waste not covered by a license, to waive compliance with any requirement of ss. 144.60 to 144.74, Stats., or to shorten any time period provided under ss. 144.60 to 144.74, Stats. A waiver:

(1) May be oral or written. If oral, it shall be followed within 5 business days by written authorization. The applicant who submits a written request for emergency authorization shall be advised, in writing, by the department of approval or disapproval of the request within 15 business days after receipt of the request.

(2) May not exceed 90 days in duration.

(3)(a) May be issued to a person engaged in treatment or containment activities associated with an immediate response to:

1. A discharge of hazardous waste;
2. A discharge of materials or items which, when discharged, become a hazardous waste; or

Note: These materials or items are listed in s. NR 605.09(3)(b), table IV and (c), table V.

3. An imminent and substantial threat of a discharge of hazardous waste.

(b) A person issued a waiver under par. (a):

1. Shall comply with ss. NR 630.21 and 630.22(1) and (2);

2. Shall conduct treatment or containment activities in units designed, constructed and operated to minimize the discharge of hazardous waste or constituents thereof, unless a discharge is in compliance with chs. NR 400 to 499 for a discharge to the ambient air or ch. 147, Stats. for a discharge to the waters of this state.

(4) Shall clearly specify wastes to be received, and the manner and location of their treatment, storage or disposal.

(5) May be revoked by the department at any time if it is determined that revocation is appropriate to protect human health and the environment.

(6) Shall incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of chs. NR 600 to 685.

(7) Shall be accompanied by a public notice including:

- (a) The name and address of the department office granting the emergency waiver,
- (b) The name and location of the hazardous waste facility receiving the waiver,
- (c) A brief description of the waiver and the reasons for granting it,
- (d) The duration of the waiver, and
- (e) A brief description of the wastes involved.

NR 600.10 INCORPORATION BY REFERENCE. (1) CODE OF FEDERAL REGULATIONS. The federal regulations or appendix materials in effect on April 23, 1987 listed in this subsection are incorporated by reference in the corresponding paragraphs of this subsection. Copies of these materials are available for inspection in the offices of the department of natural resources, secretary of state and revisor of statutes, Madison, Wisconsin or may be purchased for personal use from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402.

(a) 33 CFR 153.203, July 1, 1986, notice of discharge for oil and hazardous substances, for s. NR 620.10(2)

(b) 40 CFR 60, Appendix A, Reference Methods 1 to 5 and 10, U.S. Environmental Protection Agency regulations on reference methods for the analysis of stack gases from stationary sources, for s. NR 665.07(2)(a)10. and 665.09(15)(f).

(c) 40 CFR 112, July 1, 1986, U.S. Environmental Protection Agency regulations on the preparation and implementation of Spill Prevention Control and Countermeasure (SPCC) Plans, for s. NR 630.22(1)(f)

(d) 40 CFR 263, Subpart B, July 1, 1986, U.S. Environmental Protection Agency regulations on compliance with the manifest system and recordkeeping, for s. NR 620.07.

(e) 40 CFR 264, Appendix IV, July 1, 1986, definition of Cochran's Approximation to the Behrens-Fisher Student's T-Test, for s. NR 635.12(14)(a)1.

(f) 40 CFR 265, Appendix IV, July 1, 1986, definition of the student's t-test, for s. NR 635.15(5)(b).

(g) 49 CFR 171.16, October 1, 1986, report discharge of hazardous waste during transportation, for s. NR 620.10(1)(c).

(h) 49 CFR 172, October 1, 1986, U.S. Department of Transportation regulations on packaging, labeling, marking and placarding of hazardous materials shipments, for ss. NR 615.09(2)(intro), (2)(b) and (3) and 620.11(3).

(i) 49 CFR 172.101, 172.102, 172.202 and 172.203, October 1, 1986, U.S. Department of Transportation regulations on the description of hazardous material on shipping papers, for ss. NR 600.03(59) and 615.08(8)(f).

(j) 49 CFR 173, October 1, 1986, U.S. Department of Transportation regulations on general requirements of shippers for shipments and packagings, for ss. NR 615.09(1), 620.11 and 660.13(8)(c)1. and 2.

(k) 49 CFR 173.51, October 1, 1986, definition of "forbidden explosives", 49 CFR 173.53, October 1, 1986, definition of "Class A explosives" and 49 CFR 173.88, October 1, 1986, definition of "Class B explosives", for s. NR 605.08(4)(a)8.

(l) 49 CFR 173.300, October 1, 1986, definition of "compressed gas", for s. NR 605.08(2)(a)3.

(m) 49 CFR 178, October 1, 1986, U.S. Department of Transportation regulations on general requirements of shippers for shipments and packagings, for ss. NR 615.09(1) and 660.13(8)(c)1. and 2.

(n) 49 CFR 179, October 1, 1986, U.S. Department of Transportation regulations on general requirements of shippers for shipments and packagings, for ss. NR 615.09(1) and 660.13(8)(c)1. and 2.

(2) OTHER MATERIALS. The materials listed in this subsection are incorporated by reference in the corresponding paragraphs noted. Some materials that are incorporated by reference in other references are hereby incorporated by reference and made a part of this subsection. The materials are available for inspection in the offices of the department of natural resources, secretary of state and revisor of statutes, Madison, Wisconsin or may be purchased for personal use at the corresponding address noted.

(a). American Society for Testing and Materials (ASTM)
1916 Race Street

Philadelphia, Pennsylvania 19103

1. ASTM standard D-93-79, "Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester", for s. NR 605.08(2)(a)1.
2. ASTM standard D-93-80, "Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester", for s. NR 605.08(2)(a)1.
3. ASTM standard D-3278-78, "Standard Test Methods for Flash Point of Liquids by Setaflash Closed Tester", for s. NR 605.08(2)(a)1.
4. ASTM standard D-323-82, "Standard Test Method for Vapor Pressure of Petroleum Products (REID Method)", from the Annual Book of ASTM Standards - 1980, for s. NR 605(2)(a)3.
5. ASTM standard D-346-78, "Standard Method of Collection and Preparation of Coke Samples for Laboratory Analysis", for ch. NR 605 - Appendix I(2).
6. ASTM standard D-2234-76, "Standard Method for Collection of a Gross Sample of Coal", for ch. NR 605 - Appendix I(5).
7. ASTM standard D-140-70 (reapproved 1981), "Standard Methods of Sampling Bituminous Materials", for ch. NR 605 - Appendix I(1).
8. ASTM standard D-420-69 (reapproved 1979), "Standard Recommended Practice for Investigating and Sampling Soil and Rock for Engineering Purposes", for ch. NR 605 - Appendix I(3).
9. ASTM standard D-1452-80, "Standard Practice for Soil Investigation and Sampling by Auger Borings", for ch. NR 605 - Appendix I(4).
10. ASTM standard D-2487-69 (reapproved 1975), "Standard Test Method for Classification of Soils for Engineering Purposes", for ss. NR 600.03(26), 660.06(1)(g)2. and 660.16(2)(c)5.
11. ASTM standard D-422-63 (reapproved 1972), "Standard Method for Particle-Sized Analysis of Soils", for ss. NR 660.09(1)(h)2.a., 660.10(2)(b)2.c.8). and e.3) and 660.13(10)(d)3.
12. ASTM standard D-1140-54 (reapproved 1971), "Standard Test Method for Amount of Material in Soils Finer Than the No. 200 (75- μ m) Sieve", for ss. NR 660.09(1)(h)2.b., 660.10(2)(b)2.c.9) and 660.13(10)(d)3. and 4.
13. ASTM standard D-423-66 (reapproved 1972), "Standard Test Method for Liquid Limits of Soils", for ss. NR 660.09(1)(h)2.c., 660.10(2)(b)2.c.6) and 660.13(10)(d)6.
14. ASTM standard D-424-59 (reapproved 1971), "Standard Test Method for Plastic Limit and Plasticity Index of Soils", for ss. NR 660.09(1)(h)2.d., 660.10(2)(b)2.c.7) and 660.13(10)(d)7.
15. ASTM standard D-1556-82, "Standard Test Method for Density of Soil in Place by the Sand-Cone Method", for s. NR 660.10(2)(b)2.c.3) and e.4).
16. ASTM standard D-1557-78, "Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.54 kg) Rammer and 18 in. (457 mm) Drop", for ss. NR 660.10(2)(b)2.c.4), 660.13(10)(d)8., 660.15(1)(a)2. and 660.16(1)(e)3.
17. ASTM standard D-2922-81, "Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)", for s. NR 660.10(2)(b)2.c.3).

18. ASTM standard D-2937-71 (reapproved 1976), "Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method", for s. NR 660.10(2)(b)2.c.3) and e.4).

19. ASTM standard D-698-78, "Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb. (2.49 kg) Rammer and 12 in. (305 mm) Drop", for s. NR 660.10(2)(b)2.c.4).

20. ASTM standard D-2216-80, "Standard Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures", for s. NR 660.10(2)(b)2.c.5).

21. ASTM standard D-240-76 (reapproved 1980), "Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter", for s. NR 605.09(2)(a) F500.

22. ASTM standard D-1693-70 (reapproved 1980), "Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

23. ASTM standard D-1790-62 (reapproved 1976), "Standard Test Method for Brittleness Temperature of Plastic Film by Impact", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

24. ASTM Standard D-3083-76 (reapproved 1980), "Standard Specification for Flexible Poly (vinyl chloride) Plastic Sheeting for Pond, Canal, and reservoir Lining", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

25. ASTM standard D-746-79, "Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

26. ASTM standard D-751-79, "Standard Methods for Testing Coated Fabrics", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

27. ASTM standard D-792-66 (reapproved 1979), "Standard Test Methods for Specific Gravity and Density of Plastics by Displacement", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

28. ASTM standard D-882-81, "Standard Test Methods for Tensile Properties of Thin Plastic Sheeting", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

29. ASTM standard D-1004-66 (reapproved 1981), "Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

30. ASTM Standard D-1203-67 (reapproved 1981), "Standard Test Methods for Volatile Loss from Plastics using Activated Carbon Methods", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

31. ASTM standard D-1204-78, "Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

32. ASTM standard D-1593-81, "Standard Specification for Nonrigid Vinyl Chloride Plastic Sheeting", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

33. ASTM standard D-638-82a, "Standard Test Method for Tensile Properties of Plastics", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

34. ASTM standard D-1239-55 (reapproved 1982), "Standard Test Method for Resistance of Plastic Films to Extraction by Chemicals", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

35. ASTM standard D-618-61 (reapproved 1981), "Standard Methods of Conditioning Plastics and Electrical Insulating Materials for Testing", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

36. ASTM standard D-413-82, "Standard Test Methods for Rubber Property-Adhesion to Flexible Substrate", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

37. ASTM standard D-2136-66 (reapproved 1978), "Standard Method of Testing Coated Fabrics - Low Temperatures Bend Test", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

38. ASTM standard D-412-80, "Standard Test Methods for Rubber Properties in Tension", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

39. ASTM standard D-624-81, "Standard Test Method for Rubber Property-Tear Resistance", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

40. ASTM standard D-471-79, "Standard Test Method for Rubber Property-Effect of Liquids", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

41. ASTM standard D-2240-81, "Standard Test Method for Rubber Property-Durometer Hardness", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

42. ASTM standard D-1149-81, "Standard Test Method for Rubber Deterioration - Surface Ozone Cracking in a Chamber (Flat Specimen)", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

43. ASTM standard D-573-81, "Standard Test Method for Rubber - Deterioration in an Air Oven",

incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

44. ASTM standard D-297-81, "Standard Methods for Rubber Products - Chemical Analysis", incorporated by reference in National Sanitation Foundation Standard 54, "Flexible Membrane Liners", November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.

(b) U.S Environmental Protection Agency
Office of Solid Waste

Available from:

National Technical Information Service
U.S. Department of Commerce
Springfield, Virginia 22161

1. SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985, for ss. 600.03(81), 605.08(3)(a)1. and 2., 605.09(2)(a) F500, 605.11, (2), (4)(a), (b) and (c), Appendix I(6) and (7) and Appendix II, 645.02(1), 660.13(7) and 665.06(1)(d)1.d. and 2., (e)1.c. and d.

2. EPA-600/8-84-002, Report on "Sampling and Analysis Methods for Hazardous Waste Combustion" (on Microfiche), for ss. NR 665.06(1)(d)2., (e)1.c., and d. and 665.07(2)(a)10. and 665.09(15)(f).

(c) National Sanitation Foundation
P.O. Box 1468
Ann Arbor, MI 48106

National Sanitation Foundation Standard 54 for Flexible Membrane Liners, as prepared by the Joint Committee on Flexible Membrane liners and Recommended for Adoption by the NSF Council of Public Health Consultants, Adopted by the NSF Board of Trustees, November, 1983, for ss. NR 660.08(2)(e)2.(intro), 660.09(1)(g) and 660.10(2)(b)2.d.(intro).

(d) Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The Standard Industrial Classification (SIC) Manual, 1972, as amended by the 1977 Supplement, U.S. Government Printing Office Stock Numbers 4101-0066 and 003-005-00176-0, respectively, for s. NR 606.09(2)(b) Table III, K062.

(e) National Association of Corrosion Engineers
P.O. Box 218340
Houston, Texas 77218

Recommended Practice (RP-02-85) - Control of External Corrosion on Metallic Buried, Partially Buried or Submerged Liquid Storage Systems, for s. NR 645.08(1)(c)2.c. Note.

NR 600.11 ENFORCEMENT. (1) PROCEDURE. If the department has reason to believe that there has been a violation of ss. 144.60 to 144.74, Stats., ch. NR 101 or chs. NR 600 to 685, or any special order,

plan approval or term or condition of a license or variance issued under those sections, the department may proceed under s. 144.73, Stats.

(2) PENALTIES. Any person who violates any provision of ss. 144.60 to 144.74, Stats., ch. NR 101 or chs. NR 600 to 685, or any special order, plan approval or term or condition of a license or variance issued under those sections, is subject to the penalties provided under s. 144.74, Stats. Each day of a continuing violation is a separate offense.

(3) LICENSE DENIALS, SUSPENSIONS AND REVOCATIONS. License denials, suspensions and revocations are governed by s. 144.64, Stats.

NR 605 - IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

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NR 605.01 PURPOSE. The purpose of this chapter is to establish criteria for identifying the characteristics of hazardous waste and to establish a list of solid wastes identified as hazardous based upon the use of the criteria, which shall be used by a solid waste generator, transporter or owner or operator of a solid waste treatment, storage or disposal facility to determine if the waste handled is a hazardous waste subject to regulation.

NR 605.02 APPLICABILITY. This chapter identifies those solid wastes which are subject to regulation as hazardous waste under chs. NR 600 to NR 685. This chapter does not apply to metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats., or polychlorinated biphenyls (PCBs) except where portions of this chapter are referenced in ch. NR 157.

NR 605.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 605.04 DEFINITION OF HAZARDOUS WASTE. (1) A solid waste is a hazardous waste if:

(a) It is not excluded from regulation as a hazardous waste under s. NR 605.05(1); and

(b) It meets any of the following criteria:

1. It is listed in s. NR 605.09 and has not been excluded from the lists under s. NR 605.10.

2. It is a mixture of solid waste and one or more hazardous wastes listed in s. NR 605.09 and has not been excluded under s. NR 605.10; however, the following mixtures of solid wastes and hazardous wastes listed in s. NR 605.09 are not hazardous wastes, except by application of subd. 1. or 3., if the generator can demonstrate that the mixture consists of wastewater, the discharge of which is subject to regulation under ch. 147, Stats., including wastewater at facilities which have eliminated the discharge of wastewater, and:

a. One or more of the following spent solvents listed in s. NR 605.09(2)(a), table II: carbon tetrachloride, tetrachloroethylene, trichloroethylene; if the maximum total weekly usage of these solvents, other than the amounts that may be demonstrated not to be discharged to wastewater, divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed one part per million; or

b. One or more of the following spent solvents listed in s. NR 605.09(2)(a), table II: methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents; if the maximum total weekly usage of these solvents, other than the amounts that may be demonstrated not to be discharged to wastewater, divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 25 parts per million; or

c. One of the following wastes listed in s. NR 605.09(2)(b), table III: heat exchanger bundle cleaning sludge from the petroleum refining industry, hazardous waste no. K050; or

d. A discarded commercial chemical product, or chemical intermediate listed in s. NR 605.09(3)(b), table IV or (c), table V, arising from minimal losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For purposes of this paragraph, "minimal" losses include those from normal material handling operations, e.g. spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials; minor leaks of process equipment, storage tanks or containers; leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment, and rinsate from empty containers or from containers that are rendered empty by that rinsing; or

e. Wastewater resulting from laboratory operations containing hazardous wastes listed in s. NR 605.09, tables I to V with the hazard code (t) if the annualized average flow of laboratory wastewater does not exceed one percent of total wastewater flow into the headworks of the facility's wastewater treatment or pretreatment system, or provided the wastes combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pretreatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation.

3. It exhibits any of the characteristics of hazardous waste identified in s. NR 605.08.

4. Except as provided in subd. 5, it is generated from the treatment, storage or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust or leachate, and it is a waste which is listed under s. NR 605.09, contains a waste listed under s. NR 605.09, or is derived from a waste listed under s. NR 605.09, and it has not been excluded under s. NR 605.10.

5. It is a waste pickle liquor sludge derived from the lime stabilization treatment of spent pickle liquor from the iron and steel industry falling under the standard industrial classification (SIC) codes 331 and 332, and the sludge exhibits one or more of the characteristics of hazardous waste identified in s. NR 605.08.

Note: If waste pickle liquor sludge derived from the lime stabilization treatment of spent pickle liquor from the iron and steel industry falling under SIC codes 331 and 332 does not display one or more of the characteristics of hazardous waste identified in s. NR 605.08, it is not a hazardous waste.

6. It is a mixture of nonhazardous solid waste and a hazardous waste that is listed in s. NR 605.09 solely because it exhibits one or more of the characteristics of hazardous waste identified in s. NR 605.08, unless the resultant mixture no longer exhibits any characteristic of hazardous waste identified in s. NR 605.08.

Note: The process of mixing a nonhazardous solid waste and a hazardous waste may require a license under ch. NR 680 for hazardous waste treatment.

(2) A solid waste which is not excluded from regulation under s. NR 605.05(1) becomes a hazardous waste when any of the following events occur:

(a) In the case of a waste listed in s. NR 605.09, when the waste first meets the listing description in s. NR 605.09.

(b) In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed in s. NR 605.09 is first added to the solid waste.

(c) In the case of any other solid waste, including a solid waste mixture, when the waste exhibits any of the characteristics identified in s. NR 605.08.

(3) A hazardous waste shall remain a hazardous waste unless and until it:

(a) No longer exhibits any of the characteristics of a hazardous waste identified in s. NR 605.08; or

(b) In the case of a waste which is listed under s. NR 605.09, contains a waste listed under s. NR 605.09, or is derived from a waste listed under s. NR 605.09, the waste is excluded under s. NR 605.10.

(c) Is no longer a solid waste.

NR 605.05 EXEMPTIONS. (1) EXEMPTIONS. (a) The following materials are excluded from regulation as hazardous wastes:

1. Household waste, including all of the following:

a. Waste that has been collected, transported, stored, treated, disposed, recovered or reused, except if the hazardous waste in this stream is separated and accumulated for later treatment, storage or disposal by a person other than a member of the household where the waste is generated.

b. Waste accumulated by a municipality for 5 days or less in a clean sweep program as defined in s. NR 187.03(1). This exclusion for clean sweep programs does not apply to the household waste upon its removal from the accumulation area for further management.

Note: The accumulation, treatment, storage and disposal of household wastes which are not excluded under this paragraph are subject to regulation under chs. NR 600 to 685.

2. Waste that is treated, stored, disposed or otherwise managed by a resource recovery facility managing municipal solid waste, if such facility:

a. Receives and burns only:

1) Household waste, and

2) Solid waste from commercial or industrial sources that does not contain hazardous waste; and

b. Does not accept hazardous waste and the owner or operator of the facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous waste is not received at or burned in the facility.

3. Cement kiln dust waste.

4. Solid wastes generated by any of the following and which are returned to the soils as fertilizers:

a. The growing and harvesting of agricultural crops.

b. The raising of animals, including animal manures.

5. Discarded wood or wood products which fail the test for the characteristic of EP toxicity given in s. NR 605.08(5) and are not a hazardous waste for any other reason, if the waste is generated by persons who utilize arsenical-treated wood and wood products for the intended end use of these materials.

6. Polychlorinated biphenyls (PCBs) regulated under ch. NR 157.

7. Fly ash waste, bottom ash waste, slag waste and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels.

8. Drilling fluids, produced waters, and other wastes associated with the exploration, development or production of crude oil, natural gas or geothermal energy.

9. Wastes which fail the test for the characteristic of EP toxicity because chromium is present or are listed in s. NR 605.09 due to the presence of chromium, which do not fail the test for the characteristic of EP toxicity for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if it is shown by a waste generator or waste generators that:

a. The chromium in the waste is exclusively, or nearly exclusively, trivalent chromium; and

b. The waste is generated from an industrial process which used trivalent chromium exclusively, or nearly exclusively, and the process does not generate hexavalent chromium; and

c. The waste is typically and frequently managed in non-oxidizing environments.

10. Specific wastes which meet the standard in subd. 8., as long as they do not fail the test for the characteristic of EP toxicity, and do not fail the test for any other characteristic are:

a. Chrome (blue) trimmings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

b. Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

c. Buffing dust generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; and through-the-blue.

d. Sewer screenings generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

e. Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearing.

f. Wastewater treatment sludges generated by the following subcategories of the leather tanning and finishing industry: hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; and through-the-blue.

g. Waste scrap leather from the leather tanning industry, the shoe manufacturing industry and other leather product manufacturing industries.

h. Wastewater treatment sludges from the production of titanium dioxide pigment using chromium-bearing ores by the chloride process.

11. Mining overburden returned to the mine site.

12. Solid waste from the extraction, beneficiation and processing of ores and minerals, including coal, phosphate rock and the overburden from the mining of uranium ore.

14. By-products exhibiting a characteristic of hazardous waste that are reclaimed and complies with pars. (c) and (d).

Note: This exclusion does not apply to listed by-products included in s. NR 605.09.

15. Domestic sewage.

16. Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment. "Domestic sewage" means untreated sanitary wastes that pass through a sewer system.

(b) The following hazardous wastes are not subject to the requirements of chs. NR 610 to 685 when they are recycled and if the generator complies with pars. (c) and (d):

1. Scrap metal that is legitimately recovered or reclaimed.

2. Industrial ethyl alcohol that is legitimately recovered or reclaimed, except that:

a. A person initiating a shipment for legitimate recovery or reclamation in a foreign country, and any intermediary arranging for the shipment, shall comply with the requirements applicable to a primary exporter in ss. NR 615.12(1)(a), (j)1. to 4., 6. and 7., and (k) to (n), export the materials only upon consent of the receiving country and conforming with the EPA acknowledgment of consent, and provide a copy of the EPA acknowledgment of consent for the shipment to the transporter transporting the shipment for export;

b. Transporters transporting a shipment for export may not accept a shipment if the transporter knows the shipment does not conform to the EPA acknowledgment of consent, shall ensure that a copy of the EPA acknowledgment of consent accompanies the shipment and shall ensure that it is delivered to the facility designated by the person initiating the shipment.

(c) Generators of wastes that are excluded under pars. (a)12. and (b) shall demonstrate, at the department's request, compliance with the terms of the exclusions by providing the following information:

1. The name, location and address of the recycling facility;

2. A description of the waste, hazardous waste number and waste quantity;

3. A detailed description of the recycling process and how the waste is used as an ingredient in the process;

4. A demonstration that there is a market or disposition of the waste; and

Note: An example of a demonstration of a market or disposition would be a contract showing the recycling facility uses the recyclable waste material as an ingredient in a production process.

5. Documentation that the recycling facility has the necessary equipment to conduct the recycling activity.

(d) The exclusions included in pars. (a)12. and (b) do not apply to wastes that are used in a manner constituting disposal or speculatively accumulated. Wastes that are used in a manner constituting disposal or speculatively accumulated are hazardous waste and shall be managed in accordance with all the requirements of chs. NR 600 to 685.

(2) GENERATION OF WASTE IN PRODUCT OR RAW MATERIAL UNITS. A hazardous waste which is generated in a product or raw material storage tank, a product or raw material vehicle, railroad freight car, vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated non-waste-treatment manufacturing unit, is not subject to regulation under chs. NR 600 to 685 until it exits the unit in which it was generated, unless the unit is a surface impoundment or unless the hazardous waste remains in the unit more than 90 days after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials. In accordance with s. NR 615.05(4)(a)4., the date upon which each period of accumulation begins after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials, shall be clearly marked and visible for inspection on each unit.

(3) SAMPLES. (a) Except as provided in par. (b), a sample of solid waste or a sample of water, soil or air which is collected for the sole purpose of testing to determine its characteristics or composition is not subject to regulation under chs. NR 600 to 685 when the sample is being:

1. Transported to a laboratory for the purpose of testing;
2. Transported back to the sample collector after testing;
3. Stored by the sample collector before transport to a laboratory for testing;
4. Stored in a laboratory before testing;
5. Stored in a laboratory after testing but before it is returned to the sample collector; or
6. Stored temporarily in the laboratory after testing for a specific purpose.

Note: An example of a specific purpose would be storage until conclusion of a court case or enforcement action where further testing of the sample may be necessary.

(b) In order to qualify for the exemption in par. (a)1. and 2., a sample collector shipping samples to a laboratory and a laboratory returning samples to a sample collector shall:

1. Comply with DOT, U.S. postal service (USPS) or any other applicable shipping requirements; or
2. Comply with the following requirements, if the sample collector determines that DOT, USPS or other shipping requirements do not apply to the shipment of the sample:

a. Assure that the following information accompanies the sample: the sample collector's name, mailing address and telephone number; the laboratory name, address and telephone number; the quantity of the sample; the date of shipment; and a description of the sample; and

b. Package the sample so that it does not leak, spill or vaporize from its packaging.

(c) This exemption does not apply if the laboratory determines that the waste is hazardous but the laboratory no longer meets any of the conditions stated in par. (a).

(4) TREATABILITY STUDIES SAMPLES. (a) Except as provided in par. (b), persons who generate or collect samples for the purpose of conducting treatability studies are not subject to any requirement of chs. NR 610 to 699 when:

1. The sample is being collected and prepared for transportation by the generator or sample collector;
2. The sample is being accumulated or stored by the generator or sample collector prior to transportation to a laboratory or testing facility;
3. The sample is being transported to the laboratory or testing facility for the purpose of conducting a treatability study; or
4. The sample shipment is accompanied by a manifest, according to the requirements of s. NR 615.08.

(b) The exemption in par. (a) is applicable to samples of hazardous waste being collected and shipped for the purpose of conducting treatability studies if:

1. The generator or sample collector uses in treatability studies no more than 1000 kg of any non-acute hazardous waste, 1 kg of acute hazardous waste, or 250 kg of soils, water or debris contaminated with acute hazardous waste for each process being evaluated for each generated waste stream;

2. The mass of each sample shipment does not exceed 1000 kg of non-acute hazardous waste, 1 kg of acute hazardous waste or 250 kg of soils, water or debris contaminated with acute hazardous waste;

3. The sample is packaged so that it does not leak, spill or vaporize from its package during shipment and meet the following requirements:

a. The transportation of each sample shipment complies with ch. NR 620, U.S. Department of Transportation (DOT), U.S. Postal Service (USPS) and any other applicable shipping requirement;

b. If the DOT, USPS or other shipping requirements do not apply to the shipment of the sample, the following information must accompany the sample:

- 1) The name, mailing address and telephone number of the originator of the sample;
- 2) The name, address and telephone number of the facility that will perform the treatability study;
- 3) The quantity of the sample;
- 4) The date of shipment; and
- 5) A description of the sample, including its EPA hazardous waste number.

4. The sample is shipped to a laboratory or testing facility which:

a. Is exempt under s. NR 605.05(5);

b. Has an operating license, interim license, variance or waiver from the department;

c. Is shipped to an out-of-state laboratory or facility that has an applicable exemption, operating license, interim license, variance or waiver which has been granted by EPA or an authorized state; and

5. The generator or sample collector maintains the following records for a period ending 3 years after completion of the treatability study:

a. Copies of the manifest and any other required shipping documents;

b. A copy of the contract with the facility conducting the treatability study; and

c. Documentation showing:

1) The amount of waste shipped under this exemption;

2) The name, address and EPA identification number of the laboratory or testing facility that received the waste;

3) The date that the shipment was made; and

4) Whether or not unused samples and residues were returned to the generator.

6. The generator reports the information required under subd. 5.c. in its annual report.

(c)1. The department may grant requests, on a case-by-case basis, for quantity limits in excess of those specified in par. (b)1., for up to an additional 500 kg of non-acute hazardous waste, 1 kg of acute hazardous waste and 250 kg of soils, water and debris contaminated with acute hazardous waste, to conduct further treatability study evaluation when:

a. There has been an equipment or mechanical failure during the conduct of a treatability study;

b. There is a need to verify the results of a previously conducted treatability study;

c. There is a need to study and analyze alternative techniques within a previously evaluated treatment process; or

d. There is a need to do further evaluation of an ongoing treatability study to determine final specifications for treatment.

2. The additional quantities allowed are subject to all the provisions in sub. (4)(a) and (b)2. to 6.

3. The generator or sample collector shall apply to the department and provide the following information:

a. The reason why the generator or sample collector requires an additional quantity of sample for the treatability study evaluation and the amount needed;

b. Documentation accounting for all samples of hazardous waste from the waste stream which have been sent for or undergone treatability studies including;

1) The date each previous sample from the waste stream was shipped;

- 2) The quantity of each previous shipment;
- 3) The laboratory or testing facility to which it was shipped;
- 4) What treatability study processes were conducted on each sample shipped, and
- 5) A summary of the results of each treatability study.

c. A description of the technical modifications or change in specification that shall be evaluated and the expected results;

d. If further study is being required due to equipment or mechanical failure, information concerning the reason for the failure or breakdown and what procedures or equipment improvements have been made to protect against further breakdowns; and

e. Other information that the department considers necessary.

(5) SAMPLES UNDERGOING TREATABILITY STUDIES AT LABORATORIES AND TESTING FACILITIES.

Samples undergoing treatability studies and the laboratory or testing facility conducting treatability studies, to the extent the facilities are not otherwise subject to the requirements of chs. NR 600 to NR 685, are not subject to any requirement of chs. NR 600 to NR 685 if the conditions of pars. (a) to (k) are met. A mobile treatment unit may qualify as a testing facility subject to pars. (a) to (k). Where a group of mobile treatment units are located at the same site, the limitations specified in pars. (a) to (k) apply to the entire group of mobile treatment units collectively as if the group were one mobile treatment unit.

(a) No less than 45 days before conducting treatability studies, the facility shall notify the department, in writing, that it intends to conduct treatability studies under this subsection.

(b) The laboratory or testing facility conducting the treatability study shall have an EPA identification number.

(c) No more than a total of 250 kg of "as received" hazardous waste is subject to initiation of treatment in all treatability studies in any single day. "As received" waste refers to the waste as received in the shipment from the generator or sample collector.

(d) The quantity of "as received" hazardous waste stored at the facility for the purpose of evaluation in treatability studies does not exceed 1000 kg, the total of which may include 500 kg of soils, water or debris contaminated with acute hazardous waste or 1 kg of acute hazardous waste. This quantity limitation does not include:

1. Treatability study residues; and
2. Treatment materials, including nonhazardous solid waste, added to "as received" hazardous waste.

(e) No more than 90 days have elapsed since the treatability study for the sample was completed, or no more than one year has elapsed since the generator or sample collector shipped the sample to the laboratory or testing facility, whichever date first occurs.

(f) The treatability study does not involve the placement of hazardous waste on the land or open burning of hazardous waste.

(g) The facility maintains records for 3 years following completion of each study that show compliance with the treatment rate limits and the storage time and quantity limits. The following specific information shall be included for each treatability study conducted:

1. The name, address and EPA identification number of the generator or sample collector of each waste sample;

2. The date the shipment was received;

3. The quantity of waste accepted;

4. The quantity of "as received" waste in storage each day;

5. The date the treatment study was initiated and the amount of "as received" waste introduced to treatment each day;

6. The date the treatability study was conducted;

7. The date any unused sample or residues generated from the treatability study were returned to the generator or sample collector or, if sent to a designated facility, the name of the facility and the EPA identification number.

(h) The facility keeps, on-site, a copy of the treatability study contract and shipping papers associated with the transport of treatability study samples to and from the facility for a period ending 3 years from the completion date for each treatability study.

(i) The facility prepares and submits a report to the department by March 15 of each year that estimates the number of studies and amount of waste expected to be used in treatability studies during the current year and includes the following information for the previous calendar year:

1. The name, address and EPA identification number of the facility conducting the treatability studies;

2. The types, by process, of treatability studies conducted;

3. The names and addresses of persons for whom studies have been conducted, including their EPA identification numbers;

4. The total quantity of waste in storage each day;

5. The quantity and types of waste subjected to treatability studies;

6. When each treatability study was conducted;

7. The final disposition of residues and unused sample from each treatability study.

(j) The facility determines whether any unused sample or residues generated by the treatability study are hazardous waste under s. NR 605.07 and, if so, are subject to chs. NR 600 to NR 685, unless the residues and unused samples are returned to the sample originator under the s. NR 605.05(4) exemption.

(k) The facility notifies the department, by letter, when the facility is no longer planning to conduct any treatability studies at the site.

NR 605.06 RESIDUES OF HAZARDOUS WASTE IN EMPTY CONTAINERS. (1) Any hazardous waste that is remaining in either an empty container or an inner liner removed from an empty container, that meet the criteria in sub. (3), (4) or (5), is not subject to regulation under chs. NR 600 to 685.

2. Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed; and

(b) The characteristic may be:

1. Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste; or

2. Reasonably detected by generators of solid waste through their knowledge of their waste.

(2) CRITERIA FOR LISTING HAZARDOUS WASTE. (a) The department shall list a solid waste as a hazardous waste under s. NR 605.09 only upon determining that the solid waste meets one of the following criteria:

1. It exhibits any of the characteristics of hazardous waste identified in s. NR 605.08.

2. It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown to have an oral LD50 toxicity measured in rats of less than 50 milligrams per kilogram, an inhalation LC50 toxicity measured in rats of less than 2 milligrams per liter, or a dermal LD50 toxicity measured in rabbits of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness.

3. It contains any of the hazardous constituents listed in Appendix IV unless, after considering any of the following factors, the department concludes that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed:

a. The nature of the toxicity presented by the constituent.

b. The concentrations of the constituent in the waste.

c. The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in subpar. g.

d. The persistence of the constituent or any toxic degradation product of the constituent.

e. The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.

f. The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.

g. The plausible types of improper management to which the waste could be subjected.

h. The quantities of the waste generated at individual generation sites or on a regional or statewide basis.

i. The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.

j. Actions taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.

k. Other factors as may be relevant in a specific case.

(2) Any hazardous waste in either a container that is not empty or an inner liner removed from a container that is not empty, as specified in sub. (3) to (5), is subject to regulation under chs. NR 600 to 685.

(3) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is listed as an acute hazardous waste in s. NR 605.09(2)(a), table II or (b), table III, or identified in table IV of s. NR 605.09(3)(b), is empty if all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container; and

Note: Examples of commonly employed practices would be pouring, pumping and aspirating

(a) No more than 2.5 centimeters (one inch) of residue remains on the bottom of the container or inner liner, or

(b) No more than 3% by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 110 gallons in size, or

(c) No more than 0.3% by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gallons in size.

(4) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric pressure.

(5) A container or an inner liner removed from a container that has held an acute hazardous waste listed in s. NR 605.09(2)(a), table II or (b), table III, or identified in s. NR 605.09(3)(b), table IV is empty if:

(a) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(b) The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(c) In the case of a container, the inner liner, that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

Note: Empty containers and rinsate from the cleaning or reconditioning of empty containers are regulated as solid waste under chs. NR 500 to 522. In addition, any rinsate from the cleaning or reconditioning of empty containers as specified in this section is subject to regulation as a hazardous waste under chs. NR 600 to 695 if it exhibits any of the characteristics in s. NR 605.08.

NR 605.07 CRITERIA FOR IDENTIFYING THE CHARACTERISTICS OF HAZARDOUS WASTE AND FOR LISTING HAZARDOUS WASTE. (1) CRITERIA FOR IDENTIFYING THE CHARACTERISTICS OF HAZARDOUS WASTE. The department shall identify and define a characteristic of hazardous waste only upon determining that:

(a) A solid waste that exhibits the characteristic may:

1. Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(b) The department may list classes or types of solid waste if there is reason to believe that individual wastes, within the class or type of waste, typically or frequently because their quantity, concentration, or physical, chemical or infectious characteristics, may:

1. Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
2. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed.

(c) Hazardous wastes which have been listed in accordance with the criteria in par. (a)2. are designated as acute hazardous wastes and wastes which have been listed in accordance with the criterion in par. (a)3. are designated as toxic wastes.

Note: Section 144.62, Stats., requires the department to add any waste listed by U. S. EPA to the lists in s. NR 605.09. The criteria of sub. (2) apply only to wastes listed by Wisconsin.

NR 605.08 CHARACTERISTICS OF HAZARDOUS WASTE. (1) GENERAL. (a) A solid waste which is not excluded from regulation under s. NR 605.05(1) is a hazardous waste if it exhibits any of the characteristics identified in this section.

(b) A hazardous waste which is identified by a characteristic in this section, but is not listed as a hazardous waste in s. NR 605.09, is assigned the hazardous waste number for that characteristic in this section. This number shall be used in complying with the notification requirements in s. NR 600.05 and record-keeping and reporting requirements under chs. NR 610, 615, 620 and 630.

(c) For purposes of this section, the department shall consider a sample obtained using any of the applicable sampling methods specified in appendix I to be a representative sample.

(2) CHARACTERISTIC OF IGNITABILITY. (a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

1. It is a liquid, other than an aqueous solution containing less than 24% alcohol by volume, and has a flash point less than 60°C (140°F), as determined by a Pensky-Martens closed cup tester, using the test method specified in ASTM standard D-93-79, or D-93-80, or a Setaflash closed cup tester, using the test method specified in ASTM standard D-3278-78, or as determined by an equivalent test method approved by EPA.

Note: The publications containing these standards may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

2. It is not a liquid and is capable, at a temperature of 25°C and a pressure of one atmosphere, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

3. It is an ignitable compressed gas as defined in 49 CFR 173.300 [November 1, 1985], and as determined by the test methods described in that regulation, ASTM standard D-323, or equivalent test methods approved by EPA.

Note: The publication containing this regulation may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

The publication containing this regulation is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

4. It is an oxidizer, such as a chlorate, permanganate, inorganic peroxide, nitro carbo nitrate or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter.

(b) A solid waste that exhibits the characteristic of ignitability, but is not listed as hazardous waste in s. NR 605.09(2), has the hazardous waste number of D001.

(3) CHARACTERISTIC OF CORROSIVITY. (a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

1. It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either EPA test method 9040 in SW-846, "Test Methods for Evaluating Solid Waste", 2nd Ed., 1982, as amended by update I in April, 1984 and update II in April, 1985 or an equivalent test method approved by EPA.

Note: This publication may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

This publication is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

2. It is a liquid and corrodes plain carbon steel with a carbon content of 0.20% at a rate greater than 6.35 mm (0.250-inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) standard TM-01-69 as standardized in SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985, or an equivalent test method approved by EPA.

(b) A solid waste that exhibits the characteristic of corrosivity, but is not listed as a hazardous waste in s. NR 605.09(2), has the hazardous waste number of D002.

(4) CHARACTERISTIC OF REACTIVITY. (a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

1. It is normally unstable and readily undergoes violent change without detonating.
2. It reacts violently with water.
3. It forms potentially explosive mixtures with water.

4. When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

5. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

7. It is readily capable of detonation or explosive decomposition or reaction at a temperature of 25°C and a pressure of one atmosphere.

8. It is a forbidden explosive as defined in 49 CFR 173.51 [November 1, 1985], or a Class A explosive as defined in 49 CFR 173.53 [November 1, 1985], or a Class B explosive as defined in 49 CFR 173.88 [November 1, 1985].

Note: The publications containing these regulations may be obtained from:

The Superintendent of Documents
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The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in s. NR 605.09(2), has the hazardous waste number of D003.

(5) CHARACTERISTIC OF EP TOXICITY. (a) A solid waste exhibits the characteristic of extraction procedure (EP) toxicity if, using the test methods described in s. NR 605.11, the extract from a representative sample of the waste contains any of the contaminants listed in table I at a concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5% filterable solids, the waste itself, after filtering, is considered to be the extract for the purpose of this section.

(b) A solid waste that exhibits the characteristic of EP toxicity, but is not listed as a hazardous waste in s. NR 605.09(2), has the hazardous waste number specified in table I which corresponds to the toxic contaminant causing it to be hazardous.

Table I
Maximum Concentration of Contaminants for Characteristic
of EP Toxicity

Hazardous Waste Number	Contaminant	Maximum Concentration (milligrams per liter)
D004	Arsenic	5.0
D005	Barium	100.0
D006	Cadmium	1.0
D007	Chromium	5.0
D008	Lead	5.0
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	5.0
D012	Endrin (1, 2, 3, 4, 10, 10- hexachloro-1,7-epoxy-1, 4, 4a, 5, 6, 7, 8, 8a-octahydro-1, 4-endo, endo-5, 8-dimethano	

	naphthalene)	0.02
D013	Lindane (1, 2, 3, 4, 5,6-hexachlorocyclohexane, gamma isomer)	0.4
D014	Methoxychlor (1, 1, 1-Trichloro-2, 2-bis (p-methoxyphenyl) ethane)	10.0
D015	Toxaphene (C ₁₀ H ₁₀ Cl ₈ , Technical chlorinated camphene, 67-69 per cent chlorine)	0.5
D016	2, 4-D, (2, 4-Dichlorophenoxyacetic acid)	10.0
D017	2, 4, 5-TP Silvex (2, 4, 5-Trichlorophenoxypropionic acid)	1.0

NR 605.09 LISTS OF HAZARDOUS WASTES. (1) GENERAL. (a) A solid waste is a hazardous waste if it is listed in this section, unless it has been excluded from the lists under s. NR 605.10.

(b) The department has indicated the basis for listing the classes or types of wastes listed in this section by employing one or more of the following hazard codes:

1. Ignitable waste (I)
2. Corrosive waste (C)
3. Reactive waste (R)
4. EP toxic waste (E)
5. Acute hazardous waste (H)
6. Toxic waste (T)

Note: Appendix III identifies the constituent which caused the department to list the waste as a EP toxic waste (E) or toxic waste (T) in sub. (2)(a) and (b).

(c) Each hazardous waste listed in subs. (2) and (3) is assigned a hazardous waste number which precedes the name of the waste. This number shall be used in complying with the notification requirements of s. NR 600.05 and recordkeeping requirements under chs. NR 610, 615, 620 and 630.

(d) The following hazardous wastes listed in table II of sub. (2) are acute hazardous wastes subject to the exclusion limits established in s. NR 610.09:

1. Hazardous waste numbers F020, F021, F022 and F023; and
2. Hazardous waste numbers F026 and F027.

(2) HAZARDOUS WASTE SOURCES. (a) Solid waste from nonspecific sources is a hazardous waste if it is listed in table II.

Table II

Hazardous Waste from Nonspecific Sources

Hazardous

Waste Number	Hazardous Waste	Hazard Code
Generic: F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all mixtures and blends of spent solvents used in degreasing containing, before use, a total of 10% or more, by volume, of one or more of the above halogenated solvents or those solvents listed in F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane and 1,1,2-trichloroethane; all mixtures and blends of spent solvents containing, before use, a total of 10% or more, by volume, of one or more of the above halogenated solvents or those listed in F001, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone and methanol; all mixtures and blends of spent solvents containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents and a total of 10% or more, by volume, of one or more of those solvents listed in F001, F002, F004 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I)
F004	The following spent non-halogenated solvents: cresols, cresylic acid, and nitrobenzene; all mixtures and blends of spent solvents containing, before use, a total of 10% or more, by volume, of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol and 2-nitropropane; all mixtures and blends of spent solvents containing, before use, a total of 10% or more, by volume, of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I, T)
F006	Wastewater treatment sludges from electroplating operations, except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating, segregated basis, on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning or stripping associated with tin,	(T)

zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.

Note: Electroplating operations are considered to include common and precious metals electroplating, anodizing, chemical etching and milling, and cleaning and stripping when associated with these processes. For more information, refer to 51 FR 43350 to 43351, Tuesday, December 2, 1986.

F007	Spent cyanide plating bath solutions from electroplating operations.	(R, T)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R, T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R, T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R, T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R, T)
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum.	(T)
F020	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use, as a reactant, chemical intermediate or component in a formulating process, of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.	(H)
F021	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use, as a reactant, chemical intermediate or component in a formulating process, of pentachlorophenol, or of intermediates used to produce its derivatives.	(H)
F022	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the manufacturing use, as a reactant, chemical intermediate or component in a formulating process, of tetra-, penta-, or hexa-chlorobenzenes under alkaline conditions.	(H)
F023	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production of materials on equipment previously used for the production or manufacturing use, as a reactant, chemical intermediate or component in a formulating process, of tri- and tetrachlorophenols. This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.	(H)

F024	Wastes including but not limited to, distillation residues, heavy ends, tars and reactor clean-out wastes from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to 5, utilizing free radical catalyzed processes. This listing does not include light ends, spent filters and filter aids, spent desiccants, wastewater, wastewater treatment sludges, spent catalysts and waste listed in table III of s. NR 605.09(2)(b).	(T)
F026	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production of materials on equipment previously used for the manufacturing use, as a reactant, chemical intermediate or component in a formulating process, of tetra-, penta- or hexachlorobenzene under alkaline conditions.	(H)
F027	Discarded, used or unused formulations containing tri-, tetra- or pentachlorophenol or discarded used or unused formulations containing compounds derived from these chlorophenols. This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.	(H)
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with hazardous wastes F020, F021, F022, F023, F026 or F027.	(T)
F500	Waste contaminated with the halogenated compounds tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, ortho-dichlorobenzene, dichlorodifluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, 1,1-dichloroethylene, and 1,2-dichloroethylene at greater than 1% (10,000 ppm) solvent concentration, except used chlorofluorocarbon refrigerants that are recycled and that are handled according to s. NR 605.05(1)(c) and (d). This listing includes any combination of the above named halogenated compounds where the total concentration of the sum of the concentrations of the individual compounds exceeds 1% or 10,000 ppm on a weight to weight basis. Halogenated solvent concentration shall be determined using EPA methods 8010 or 8240 for halogenated volatile organics as specified in SW-846, "Test Methods for Evaluating Solid Waste" or total chloride analysis of bomb washings from ASTM D 240-76, "Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter".	(T)

Note: The publication SW-846, "Test Methods for Evaluating Solid Waste", may be obtained from:

The Superintendent of Documents
 U.S. Government Printing Office
 Washington, D.C. 20402

The publication containing the ASTM method may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) Solid waste from specific sources is a hazardous waste if it is listed in table III.

Table III

Hazardous Waste from Specific Sources

Hazardous Waste Number	Hazardous Waste	Hazardous Code
Wood Preservation		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote or pentachlorophenol.	(T)
Inorganic Pigments		
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	(T)
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	(T)
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	(T)
K005	Wastewater treatment sludge from the production of chrome green pigments.	(T)
K006	Wastewater treatment sludge from the production of chrome oxide green pigments, anhydrous and hydrated.	(T)
K007	Wastewater treatment sludge from the production of iron blue pigments.	(T)
K008	Oven residue from the production of chrome oxide green pigments.	(T)
Organic Chemicals		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	(T)
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	(T)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(R, T)

K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	(R, T)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	(T)
K015	Still bottoms from the distillation of benzyl chloride.	(T)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	(T)
K017	Heavy ends or still bottoms from the purification column in the production of epichlorohydrin.	(T)
K018	Heavy ends from the fractionation column in ethyl chloride production.	(T)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(T)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(T)
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	(T)
K022	Distillation bottom tars from the production of phenol or acetone from cumene.	(T)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	(T)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(T)
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.	(T)
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.	(T)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	(T)
K026	Stripping still tails from the production of methyl ethyl pyridines.	(T)
K027	Centrifuge and distillation residues from toluene diisocyanate production.	(R, T)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	(T)
K029	Waste from the product stream stripper in the production of 1,1,1-trichloroethane.	(T)

K095	Distillation bottoms from the production of 1,1,1-trichloroethane.	(T)
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	(T)
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(T)
K083	Distillation bottoms from aniline production.	(T)
K103	Process residues from aniline extraction from the production of aniline.	(T)
K104	Combined wastewater streams generated from nitrobenzene/aniline production.	(T)
K085	Distillation or fractionating column bottoms from the production of chlorobenzenes.	(T)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(T)
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene.	(C, T)
K112	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(T)
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	(T)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	(T)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(T)
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(T)

Pesticides

K031	By-product salts generated in the production of MSMA and cacodylic acid.	(T)
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K032	Wastewater treatment sludge from the production of chlordane.	(T)
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	(T)
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	(T)
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.	(T)
K035	Wastewater treatment sludges generated in the production of creosote.	(T)
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.	(T)
K037	Wastewater treatment sludges from the production of disulfoton.	(T)
K038	Wastewater from the washing and stripping of phorate production.	(T)
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.	(T)
K040	Wastewater treatment sludge from the production of phorate.	(T)
K041	Wastewater treatment sludge from the production of toxaphene.	(T)
K098	Untreated process wastewater from the production of toxaphene.	(T)
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	(T)
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	(T)
K099	Untreated wastewater from the production of 2,4-D.	(T)
K123	Process wastewater, including supernates, filtrates and washwaters, from the production of ethylenebisdithiocarbamic acid and its salt.	(T)
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.	(C, T)
K125	Filtration, evaporation and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.	(T)
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.	(T)

Explosives

K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	(R)
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K045	Spent carbon from the treatment of wastewater containing explosives.	(R)
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.	(T)
K047	Pink or red water from TNT operations.	(R)

Petroleum Refining

K048	Dissolved air flotation (DAF) float from the petroleum refining industry.	(T)
K049	Slop oil emulsion solids from the petroleum refining industry.	(T)
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	(T)
K051	American Petroleum Institute (API) separator sludge from the petroleum refining industry.	(T)
K052	Tank bottoms, leaded, from the petroleum refining industry.	(T)

Iron and Steel

K061	Emission control dust or sludge from the electric furnace primary production of steel.	(T)
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry identified by the SIC codes 331 and 332.	(C,T)

Secondary Lead

K069	Emission control dust or sludge from secondary lead smelting.	(T)
K100	Waste leaching solution from acid leaching of emission control dust or sludge from secondary lead smelting.	(T)

Inorganic Chemicals

K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	(T)
K073	Chlorinated hydrocarbon wastes from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	(T)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production.	(T)

Ink Formulation

K086	Solvent washes and sludges, caustic washes and sludges, or water	(T)
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washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments; driers, soaps and stabilizers containing chromium and lead.

Veterinary Pharmaceuticals

K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	(T)
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	(T)
K102	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	(T)

Coking

K060	Ammonia still lime sludge from coking operations.	(T)
K087	Decanter tank tar sludge from coking operations.	(T)

(3) DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES AND SPILL RESIDUES THEREOF. (a) The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded, when they are mixed with used oil or other solid waste and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land in lieu of their original intended use or when they are contained in products that are applied to the land in lieu of their original intended use, or when, in lieu of their original intended use, they are produced for use as, or as a component of, a fuel, distributed for use as a fuel or burned as a fuel:

1. Any commercial chemical product or manufacturing chemical intermediate having a generic name listed in table IV or V.

2. Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have a generic name listed in table IV or V.

3. Any container or inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having a generic name listed in table IV, or off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have a generic name listed in table IV, unless the container is empty under the criteria in s. NR 605.06(5).

4. Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical intermediate having a generic name listed in table IV or V, or any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any off-specification chemical product or manufacturing chemical intermediate which, if it met specifications, would have a generic name listed in table IV or V.

(b) The commercial chemical products, manufacturing chemical intermediates, off-specification commercial chemical products or manufacturing chemical intermediates described in par. (a)1. or 2. or materials or items described in par. (a)3. or 4. listed in table IV are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion in s. NR 610.07. These wastes and their corresponding hazardous waste numbers are:

Table IV

Acute Hazardous Commercial Chemical Products and
Manufacturing Chemical Intermediates

Hazardous Waste Number	Substance
P023	Acetaldehyde, chloro
P002	Acetamide, N-(aminothioxomethyl)-
P057	Acetamide, 2-fluoro
P058	Acetic acid, fluoro-, sodium salt
P066	Acetimidic acid, N-[(methylcarbamoyl)oxy]thio-, methyl ester
P001	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present in concentrations greater than 0.3%
P002	1-Acetyl-2-thiourea
P003	Acrolein
P070	Aldicarb
P004	Aldrin
P005	Allyl alcohol
P006	Aluminum phosphide (R,T)
P007	5-(Aminomethyl)-3-isoxazolol
P008	4-Aminopyridine
P009	Ammonium picrate (R)
P119	Ammonium vanadate
P010	Arsenic acid
P012	Arsenic (III) oxide
P011	Arsenic (V) oxide
P011	Arsenic pentoxide
P012	Arsenic trioxide
P038	Arsine, diethyl-

P099 Argentate(1-), bis(cyano-C)-, potassium

P036 Arsonous dichloride, phenyl-

P054 Aziridine

P067 Aziridine, 2-methyl-

P013 Barium cyanide

P024 Benzenamine, 4-chloro-

P077 Benzenamine, 4-nirto-

P028 Benzene, (chloromethyl)-

P042 1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)

P014 Benzenethiol

P028 Benzyl chloride

P015 Beryllium

P016 Bis(chloromethyl) ether

P017 Bromoacetone

P018 Brucine

P045 2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-(methylamino) carbonyl oxime

P021 Calcium cyanide

P123 Camphene, octachloro

P103 Carbamimidoselenoic acid

P022 Carbon bisulfide

P022 Carbon disulfide

P095 Carbonyl chloride

P033 Chlorine cyanide

P023 Chloroacetaldehyde

P024 p-Chloroaniline

P026 1-(o-Chlorophenyl)thiourea

P027 3-Chloropropionitrile

P029 Copper cyanides

P030	Cyanides (soluble cyanide salts), not otherwise specified
P031	Cyanogen
P033	Cyanogen chloride
P016	Dichloromethyl ether
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P039	0,0-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate
P041	Diethyl-p-nitrophenyl phosphate
P040	0,0-Diethyl O-pyrazinyl phosphorothioate
P043	Diisopropylfluorophosphate (DFP)
P044	Dimethoate
P045	3,3-Dimethyl-1-(methylthio)-2-butanone-0 [(methylamino)carbonyl] oxime
P071	0,0-Dimethyl O-p-nitrophenyl phosphorothioate
P082	Dimethylnitrosamine
P046	alpha, alpha-Dimethylphenethylamine
P047	4,6-Dinitro-o-cresol, and salts
P034	4,6-Dinitro-o-cyclohexylphenol
P048	2,4-Dinitrophenol
P020	Dinoseb
P085	Diphosphoramidate, octamethyl-
P039	Disulfoton
P049	2,4-Dithiobiuret
P109	Dithiopyrophosphoric acid, tetraethyl ester
P050	Endosulfan
P088	Endothall
P051	Endrin, and metabolites

P042	Epinephrine
P046	Ethanamine, 1,1-dimethyl-2-phenyl
P084	Ethanamine, N-methyl-N-nitroso
P066	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester
P101	Ethyl cyanide
P054	Ethylenimine
P097	Famphur
P056	Fluorine
P057	Fluoroacetamide
P058	Fluoroacetic acid, sodium salt
P065	Fulminic acid, mercury(2+) salt (R,T)
P059	Heptachlor
P051	2,7:3,6-Dimethanonaphth[2,3b]oxirane,octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-
P037	2,7:3,6-Dimethanonaphth[2,3b]oxirane,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- octahydro-,(1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-
P060	1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P004	1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a- hexahydro,(1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-
P060	Hexachlorohexahydro-endo, endo-dimethanonaphthalene
P062	Hexaethyl tetraphosphate
P116	Hydrazinecarbothioamide
P068	Hydrazine, methyl-
P063	Hydrocyanic acid
P063	Hydrogen cyanide
P096	Hydrogen phosphide
P064	Isocyanic acid, methyl ester
P060	Isodrin
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-

P092	Mercury, (acetato-0) phenyl-
P065	Mercury fulminate (R,T)
P016	Methane, oxybis (chloro)-
P112	Methane, tetranitro-(R)
P118	Methanethiol, trichloro-
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P066	Methomyl
P067	2-Methylaziridine
P068	Methyl hydrazine
P064	Methyl isocyanate
P069	2-Methylactonitrile
P071	Methyl parathion
P072	alpha-Naphthylthiourea
P073	Nickel carbonyl
P074	Nickel cyanide
P074	Nickel (2+) cyanide
P073	Nickel tetracarbonyl
P075	Nicotine and salts
P076	Nitric oxide
P077	p-Nitroaniline
P078	Nitrogen dioxide
P076	Nitrogen (2+) oxide
P078	Nitrogen (IV) oxide
P081	Nitroglycerine (R)
P082	N-Nitrosomethylamine
P084	N-Nitrosomethylvinylamine
P050	5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite

P085 Octamethylpyrophosphoramidate
P087 Osmium oxide
P087 Osmium tetroxide
P088 7-Oxabicyclo [2.2.1] heptane-2, 3-dicarboxylic acid
P089 Parathion
P034 Phenol, 2-cyclohexyl-4,6-dinitro-
P048 Phenol, 2,4-dinitro-
P047 Phenol, 2-methyl-4,6-dinitro-, and salts
P020 Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009 Phenol, 2,4,6-trinitro-, ammonium salt (R)
P036 Phenyl dichloroarsine
P092 Phenylmercuric acetate
P093 N-Phenylthiourea
P094 Phorate
P095 Phosgene
P096 Phosphine
P041 Phosphoric acid, diethyl 4-nitrophenyl ester
P044 Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl]ester
P043 Phosphorofluoric acid, bis(1-methylethyl)ester
P094 Phosphorothioic acid, 0,0-diethyl S-(ethylthio)methyl ester
P089 Phosphorothioic acid, 0,0-diethyl O-(4-nitrophenyl) ester
P040 Phosphorothioic acid, 0,0-diethyl O-pyrazinyl ester
P097 Phosphorothioic acid, 0,0-dimethyl O-[p-((dimethylamino)-sulfonyl)phenyl]ester
P110 Plumbane, tetraethyl-
P098 Potassium cyanide
P099 Potassium silver cyanide
P070 Propanal, 2-methyl-2(methylthio)-, O-[(methylamino)carbonyl]oxime
P101 Propanenitrile

P027 Propanenitrile, 3-chloro-

P069 Propanenitrile, 2-hydroxy-2-methyl-

P081 1,2,3-Propanetriol, trinitrate-(R)

P017 2-Propanone, 1-bromo-

P102 Propargyl alcohol

P003 2-Propenal

P005 2-Propen-1-ol

P067 1,2-Propylenimine

P102 2-Propyn-1-ol

P008 4-Pyridinamine

P075 Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts

P111 Pyrophosphoric acid, tetraethyl ester

P103 Selenourea

P104 Silver cyanide

P105 Sodium azide

P106 Sodium cyanide

P107 Strontium sulfide

P108 Strychnidin-10-one, and salts

P018 Strychnidin-10-one, 2,3-dimethoxy-

P108 Strychnine and salts

P115 Sulfuric acid, thallium (I)
salt

P109 Tetraethyldithiopyrophosphate

P110 Tetraethyl lead

P111 Tetraethyl pyrophosphate

P112 Tetranitromethane (R)

P062 Tetraphosphoric acid, hexaethyl ester

P113 Thallic oxide

P113	Thallium (III) oxide
P114	Thallium (I) selenide
P115	Thallium (I) sulfate
P045	Thiofanox
P049	Thiomidodicarbonic diamide
P014	Thiophenol
P116	Thiosemicarbazide
P026	Thiourea (2-chlorophenyl)-
P072	Thiourea, 1-naphthalenyl-
P093	Thiourea, phenyl-
P123	Toxaphene
P118	Trichloromethanethiol
P119	Vanadic acid, ammonium salt
P120	Vanadium pentoxide
P120	Vanadium (V) oxide
P001	Warfarin and salts, when present at concentrations greater than 0.3%
P121	Zinc cyanide
P122	Zinc phosphide, when present at concentrations greater than 10% (R,T)

(c) The commercial chemical products, manufacturing chemical intermediates, off-specification commercial chemical products or manufacturing chemical intermediates described in par. (a)1. or 2. or materials or items described in par. (a)3. or 4. listed in table V are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion in s. NR 610.05(1). These wastes and their corresponding hazardous waste numbers are:

Table V
Toxic Commercial Chemical Products and Manufacturing Chemical Intermediates

Hazardous Waste Number	Substance
U001	Acetaldehyde (I)

U034 Acetaldehyde, trichloro-

U187 Acetamide, N-(4-ethoxyphenyl)-

U005 Acetamide, N-9H-fluoren-2-yl-

U112 Acetic acid, ethyl ester (I)

U144 Acetic acid, lead salt

U214 Acetic acid, thallium (I) salt

U232 Acetic acid,(2,4,5-trichlorophenoxy)-

U002 Acetone (I)

U003 Acetonitrile (I,T)

U248 3-(alpha-Acetylbenzyl)-4-hydroxycoumarin and salts, when present at concentrations of 0.3% or less

U004 Acetophenone

U005 2-Acetylaminofluorene

U006 Acetyl chloride (C, R, T)

U007 Acrylamide

U008 Acrylic acid (I)

U009 Acrylonitrile

U150 Alanine, 3-[p-bis(2-chloroethyl)amino] phenyl-,L

U328 2-Amino-1-methylbenzene

U353 4-Amino-1-methylbenzene

U011 Amitrole

U012 Aniline (I,T)

U136 Arsenic acid, dimethyl-

U014 Auramine

U015 Azaserine

U010 Azirino (2', 3': 3, 4) pyrrolo (1, 2-a) indole-4, 7-dione, 6-amino-8-[[((aminocarbonyl)oxy)methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-[1aS-(1aalpha,8beta,8aalpha,8balpha)]]-

U157	Benz[j]lanceanthrylene, 1,2-dihydro-3-methyl-
U016	Benz[c]acridine
U016	3,4 Benzacridine
U017	Benzal chloride
U018	Benz(a)anthracene
U018	1,2-Benzanthracene
U094	1,2-Benzanthracene, 7,12-dimethyl
U012	Benzenamine (I,T)
U014	Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl)-
U049	Benzenamine, 4-chloro-2-methyl-, hydrochloride
U093	Benzenamine, N, N'-dimethyl-4-(phenylazo)-
U158	Benzenamine, 4,4'-methylenebis (2-chloro)-
U222	Benzenamine, 2-methyl-, hydrochloride
U181	Benzenamine, 2-methyl-5-nitro
U328	Benzenamine, 2-methyl-
U019	Benzene (I, T)
U353	Benzenamine, 4-methyl-
U038	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	Benzene, 1-bromo-4-phenoxy-
U037	Benzene, chloro-
U190	1,2-Benzenedicarboxylic acid anhydride
U028	1,2-Benzenedicarboxylic acid, bis(2-ethyl-hexyl)ester
U069	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	1,2-Benzenedicarboxylic acid, diethyl ester
U102	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	1,2-Benzenedicarboxylic acid, dioctyl ester
U070	Benzene, 1,2-dichloro-

U071	Benzene, 1,3-dichloro-
U072	Benzene, 1,4-dichloro-
U017	Benzene, (dichloromethyl)-
U223	Benzene, 1,3-diisocyanatomethyl-(R, T)
U239	Benzene, dimethyl-(I,T)
U201	1,3-Benzenediol
U127	Benzene, hexachloro-
U056	Benzene, hexahydro-(I)
U188	Benzene, hydroxy
U220	Benzene, methyl-
U105	Benzene, 1-methyl-2,4-dinitro-
U106	Benzene, 1-methyl-2,6-dinitro-
U203	Benzene, 1,2-methylenedioxy-4-allyl
U141	Benzene 1,2-methylenedioxy-4-propenyl
U090	Benzene, 1,2-methylenedioxy-4 propyl
U055	Benzene, (1-methylethyl)-(I)
U169	Benzene, nitro-(I,T)
U183	Benzene, pentachloro-
U185	Benzene, pentachloronitro-
U020	Benzenesulfonic acid chloride (C,R)
U020	Benzenesulfonyl chloride (C,R)
U207	Benzene, 1,2,4,5-tetrachloro-
U023	Benzene, (trichloromethyl)-(C,R,T)
U234	Benzene, 1,3,5-trinitro-(R,T)
U021	Benzidine
U202	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, and salts
U120	Benzo [j,k] fluorene
U022	Benzo[a]pyrene

U022	3,4-Benzopyrene
U197	p-Benzoquinone
U023	Benzotrichloride (C, R, T)
U050	1,2-Benzphenanthrene
U085	2,2'-Bioxirane (I,T)
U021	(1,1'-Biphenyl)-4,4'-diamine
U073	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-
U091	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-
U095	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-
U024	Bis(2-chloroethoxy)methane
U027	Bis(2-chloroisopropyl) ether
U244	Bis(dimethylthiocarbamoyl) disulfide
U028	Bis(2-ethylhexyl) phthalate
U246	Bromine cyanide
U225	Bromoform
U030	4-Bromophenyl phenyl ether
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	1-Butanamine, N-butyl-N-nitroso-
U035	Butanoic acid, 4-[Bis(2-chloroethyl)amino] benzene-
U031	1-Butanol (I)
U159	2-Butanone (I,T)
U160	2-Butanone peroxide (R,T)
U053	2-Butenal
U074	2-Butene, 1,4-dichloro-(I,T)
U031	n-Butyl alcohol (I)
U136	Cacodylic acid
U032	Calcium chromate

U238	Carbamic acid, ethyl ester
U178	Carbamic acid, methylnitroso-, ethyl ester
U176	Carbamide, N-ethyl-N-nitroso
U177	Carbamide, N-methyl-N-nitroso
U219	Carbamide, thio
U097	Carbamic chloride, dimethyl
U215	Carbonic acid, dithallium (I) salt
U156	Carbonochloridic acid, methyl ester (I,T)
U033	Carbon oxyfluoride (R,T)
U211	Carbon tetrachloride
U033	Carbonyl fluoride (R, T)
U034	Chloral
U035	Chlorambucil
U036	Chlordane, technical
U026	Chlornaphazin
U037	Chlorobenzene
U038	Chlorobenzilate
U039	4-Chloro-m-cresol
U041	1-Chloro-2, 3-epoxypropane
U042	2-Chloroethyl vinyl ether
U044	Chloroform
U046	Chloromethyl methyl ether
U047	beta-Chloronaphthalene
U048	o-Chlorophenol
U049	4-Chloro-o-toluidine, hydrochloride
U032	Chromic acid, calcium salt
U050	Chrysene

U051	Creosote
U052	Cresols
U052	Cresylic acid
U053	Crotonaldehyde
U055	Cumene (I)
U246	Cyanogen bromide
U197	2,5-Cyclohexadiene-1,4-dione
U056	Cyclohexane (I)
U057	Cyclohexanone (I)
U130	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	Cyclophosphamide
U240	2,4-D, salts and esters
U059	Daunomycin
U060	DDD
U061	DDT
U142	Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta [c,d]-pentalen-2-one
U062	Diallate
U133	Diamine (R,T)
U221	Diaminotoluene
U063	Dibenz(a,h)anthracene
U063	1,2:5,6-Dibenzanthracene
U064	1,2:7,8-Dibenzopyrene
U064	Dibenzo[a,i]pyrene
U066	1,2-Dibromo-3-chloropropane
U069	Dibutyl phthalate
U062	S-(2,3-Dichloroallyl) diisopropylthiocarbamate
U070	o-Dichlorobenzene
U071	m-Dichlorobenzene

U072	p-Dichlorobenzene
U073	3,3'-Dichlorobenzidine
U074	1,4-Dichloro-2-butene (I, T)
U075	Dichlorodifluoromethane
U192	3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide
U060	Dichloro diphenyl dichloroethane
U061	Dichloro diphenyl trichloroethane
U078	1,1-Dichloroethylene
U079	1,2-Dichloroethylene
U025	Dichloroethyl ether
U081	2,4-Dichlorophenol
U082	2,6-Dichlorophenol
U240	2,4-Dichlorophenoxyacetic acid, salts and esters
U083	1,2-Dichloropropane
U084	1,3-Dichloropropene
U085	1,2:3,4-Diepoxybutane (I,T)
U108	1,4-Diethylene oxide
U086	N,N'-Diethylhydrazine
U087	0,0-Diethyl-S-methyl-dithiophosphate
U088	Diethyl phthalate
U089	Diethylstilbesterol
U148	1,2-Dihydro-3,6-pyridazinedione
U090	Dihydrosafrole
U091	3,3-Dimethoxybenzidine
U092	Dimethylamine (I)
U093	Dimethylaminoazobenzene

U094	7,12-Dimethylbenz[a]anthracene
U095	3,3'-Dimethylbenzidine
U096	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U097	Dimethylcarbamoyl chloride
U098	1,1-Dimethylhydrazine
U099	1,2-Dimethylhydrazine
U101	2,4-Dimethylphenol
U102	Dimethyl phthalate
U103	Dimethyl sulfate
U105	2,4-Dinitrotoluene
U106	2,6-Dinitrotoluene
U107	Di-n-octyl phthalate
U108	1,4-Dioxane
U109	1,2-Diphenylhydrazine
U110	Dipropylamine (I)
U111	Di-n-propylnitrosamine
U001	Ethanal (I)
U174	Ethanamine, N-ethyl-N-nitroso
U067	Ethane, 1,2-dibromo
U076	Ethane, 1,1-dichloro
U077	Ethane, 1,2-dichloro
U114	1,2-Ethanediylbiscarbamodithioic acid, salts and esters
U131	Ethane, 1,1,1,2,2,2-hexachloro
U024	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro]-
U003	Ethanenitrile (I,T)
U117	Ethane, 1,1'-oxybis-(I)
U025	Ethane, 1,1'-oxybis[2-chloro]-

U184	Ethane, pentachloro-
U208	Ethane, 1,1,1,2-tetrachloro-
U209	Ethane, 1,1,2,2-tetrachloro-
U218	Ethanethioamide
U227	Ethane, 1,1,2-trichloro-
U247	Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)
U043	Ethene, chloro-
U042	Ethene, 2-chloroethoxy-
U078	Ethene, 1,1-dichloro-
U079	Ethene, trans-1,2-dichloro-
U210	Ethene, 1,1,2,2-tetrachloro-
U173	Ethanol, 2,2F-(nitrosoimino)bis-
U004	Ethanone, 1-phenyl-
U006	Ethanoyl chloride (C,R,T)
U359	2-Ethoxyethanol
U112	Ethyl acetate (I)
U113	Ethyl acrylate (I)
U238	Ethyl carbamate (urethane)
U038	Ethyl 4,4'-dichlorobenzilate
U114	Ethylenebis(dithiocarbamic acid), salts and esters
U067	Ethylene dibromide
U077	Ethylene dichloride
U359	Ethylene glycol monoethyl ether
U115	Ethylene oxide (I, T)
U116	Ethylene thiourea
U117	Ethyl ether (I)
U076	Ethylidene dichloride
U118	Ethyl methacrylate

U119	Ethyl methanesulfonate
U139	Ferric dextran
U120	Fluoranthene
U122	Formaldehyde
U123	Formic acid (C, T)
U124	Furan (I)
U125	2-Furancarboxaldehyde (I)
U147	2,5-Furandione
U213	Furan, tetrahydro-(I)
U125	Furfural (I)
U124	Furfuran (I)
U206	D-Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido)
U126	Glycidylaldehyde
U163	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	Hexachlorobenzene
U128	Hexachlorobutadiene
U129	Hexachlorocyclohexane (gamma isomer)
U130	Hexachlorocyclopentadiene
U131	Hexachloroethane
U132	Hexachlorophene
U243	Hexachloropropene
U133	Hydrazine (R, T)
U086	Hydrazine, 1,2-diethyl-
U098	Hydrazine, 1,1-dimethyl-
U099	Hydrazine, 1,2-dimethyl-
U109	Hydrazine, 1,2-diphenyl-
U134	Hydrofluoric acid (C, T)

U134	Hydrogen fluoride (C,T)
U135	Hydrogen sulfide
U096	Hydroperoxide, 1-methyl-1-phenylethyl-(R)
U136	Hydroxydimethylarsine oxide
U116	2-Imidazolidinethione
U137	Indeno [1,2,3-cd]pyrene
U139	Iron dextran
U140	Isobutyl alcohol (I, T)
U141	Isosafrole
U142	Kepone
U143	Lasiocarpine
U144	Lead acetate
U145	Lead phosphate
U146	Lead subacetate
U129	Lindane
U147	Maleic anhydride
U148	Maleic hydrazide
U149	Malononitrile
U150	Melphalan
U151	Mercury
U152	Methacrylonitrile (I, T)
U092	Methanamine, N-methyl-(I)
U029	Methane, bromo-
U045	Methane, chloro-(I,T)
U046	Methane, chloromethoxy-
U068	Methane, dibromo-
U080	Methane, dichloro-
U075	Methane, dichlorodifluoro-

U138 Methane, iodo-

U119 Methanesulfonic acid, ethyl ester

U211 Methane, tetrachloro-

U121 Methane, trichlorofluoro-

U153 Methanethiol (I,T)

U225 Methane, tribromo-

U044 Methane, trichloro-

U121 Methane, trichlorofluoro-

U123 Methanoic acid (C,T)

U036 4,7-Methano-1H-indene,1,2,4,5,6,7,8,8 octachloro-2,3,3a,4,7,7a-hexahydro-

U154 Methanol (I)

U155 Methapyrilene

U247 Methoxychlor

U154 Methyl alcohol (I)

U029 Methyl bromide

U186 I-Methylbutadiene (I)

U045 Methyl chloride (I,T)

U156 Methyl chlorocarbonate (I,T)

U226 Methylchloroform

U157 3-Methylcholanthrene

U158 4,4'-Methylenebis(2-chloroaniline)

U132 2,2'-Methylenebis(3,4,6-trichlorophenol)

U068 Methylene bromide

U080 Methylene chloride

U122 Methylene oxide

U159 Methyl ethyl ketone (I,T)

U160 Methyl ethyl ketone peroxide (R,T)

U138	Methyl iodide
U161	Methyl isobutyl ketone (I)
U162	Methyl methacrylate (I, T)
U163	N-Methyl-N'-nitro-N-nitrosoguanidine
U161	4-Methyl-2-pentanone (I)
U164	Methylthiouracil
U010	Mitomycin C
U059	5,12-Naphthacenedione, (8S-cis)8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxyl]-7, 8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-
U165	Naphthalene
U047	Naphthalene, 2-chloro-
U166	1,4-Naphthalenedione
U236	2,7-Naphthalenedisulfonic acid,3,3'-[3,3-dimethyl-(1,1'-biphenyl)-4,4'diyl]]bis(azo)bis(5-amino-4-hydroxy)-,tet rasodium salt
U166	1,4-Naphthoquinone
U167	1-Naphthylamine
U168	2-Naphthylamine
U167	alpha-Naphthylamine
U168	beta-Naphthylamine
U026	2-Naphthalenamine, N,N'-bis(2-chloroethyl)
U169	Nitrobenzene (I, T)
U170	p-Nitrophenol
U171	2-Nitropropane (I, T)
U172	N-Nitrosodi-n-butylamine
U173	N-Nitrosodiethanolamine
U174	N-Nitrosodiethylamine
U111	N-Nitroso-n-propylamine
U176	N-Nitroso-N-ethylurea

U177 N-Nitroso-N-methylurea

U178 N-Nitroso-N-methylurethane

U179 N-Nitrosopiperidine

U180 N-Nitrosopyrrolidine

U181 5-Nitro-o-toluidine

U193 1,2-Oxathiolane, 2,2-dioxide

U058 2H-1,3,2-Oxazaphosphorine,
2-[bis(2-chloroethyl)amino]-tetrahydro-, 2 oxide

U115 Oxirane (I,T)

U041 Oxirane, 2-(chloromethyl)

U182 Paraldehyde

U183 Pentachlorobenzene

U184 Pentachloroethane

U185 Pentachloronitrobenzene

See F027 Pentachlorophenol

U186 1,3-Pentadiene (I)

U187 Phenacetin

U188 Phenol

U048 Phenol, 2-chloro-

U039 Phenol, 4-chloro-3-methyl-

U081 Phenol, 2,4-dichloro-

U082 Phenol, 2,6-dichloro-

U101 Phenol, 2,4-dimethyl-

U170 Phenol, 4-nitro-

See F027 Phenol, pentachloro-

See F027 Phenol, 2,3,4,6-tetrachloro-

See F027 Phenol, 2,4,5-trichloro-

See F027 Phenol, 2,4,6-trichloro-

U137	1,10-(1,2-Phenylene)pyrene
U145	Phosphoric acid, lead (2+) salt
U087	Phosphorodithioic acid, O,O-diethyl- S-methyl ester
U189	Phosphorous sulfide (R)
U190	Phthalic anhydride
U191	2-Picoline
U192	Pronamide
U194	1-Propanamine (I,T)
U110	1-Propanamine, N-propyl-(I)
U066	Propane, 1,2-dibromo-3-chloro-
U149	Propanedinitrile
U171	Propane, 2-nitro-(I)
U027	Propane, 2,2'-oxybis[2-chloro]-
U193	1,3-Propane sultone
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U126	1-Propanol, 2,3-epoxy-
U140	1-Propanol, 2-methyl-(I,T)
U002	2-Propanone (I)
U007	2-Propenamide
U084	Propene, 1,3-dichloro-
U243	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	2-Propenenitrile
U152	2-Propenenitrile, 2-methyl-(I,T)
U008	2-Propenoic acid (I)
U113	2-Propenoic acid, ethyl ester (I)
U118	2-Propenoic acid, 2-methyl-,ethyl ester
U162	2-Propenoic acid, 2-methyl-, methyl ester (I,T)

See F027 Propionic acid, 2-(2,4,5-trichlorophenoxy)-
U194 n-Propylamine (I, T)
U083 Propylene dichloride
U196 Pyridine
U155 1,2-Ethanediamine,N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)
U179 Pyridine, hexahydro-N-nitroso-
U191 Pyridine, 2-methyl-
U164 4(IH)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo
U180 Pyrrole, tetrahydro-N-nitroso-
U200 Reserpine
U201 Resorcinol
U202 Saccharin and salts
U203 Safrole
U204 Selenious acid
U204 Selenium dioxide
U205 Selenium disulfide (R, T)
U015 L-Serine, diazoacetate (ester)
See F027 Silvex
U089 4,4'-Stilbenediol, alpha, alpha'-diethyl
U206 Streptozotocin
U135 Sulfur hydride
U103 Sulfuric acid, dimethyl ester
U189 Sulfur phosphide (R)
U205 Sulfur selenide (R,T)
See F027 2,4,5-T
U207 1,2,4,5-Tetrachlorobenzene
U208 1,1,1,2-Tetrachloroethane
U209 1,1,2,2-Tetrachloroethane

U210	Tetrachloroethene
See F027	2,3,4,6-Tetrachlorophenol
U213	Tetrahydrofuran (I)
U214	Thallium (I) acetate
U215	Thallium (I) carbonate
U216	Thallium (I) chloride
U217	Thallium (I) nitrate
U218	Thioacetamide
U153	Thiomethanol (I,T)
U219	Thiourea
U244	Thiram
U220	Toluene
U221	Toluenediamine
U223	Toluene diisocyanate (R,T)
U328	o-Toluidine
U353	p-Toluidine
U222	o-Toluidine hydrochloride
U011	1H-1,2,4-Triazol-3-amine
U226	1,1,1-Trichloroethane
U227	1,1,2-Trichloroethane
U228	Trichloroethene
U228	Trichloroethylene
U121	Trichloromonofluoromethane
See F027	2,4,5-Trichlorophenol
See F027	2,4,6-Trichlorophenol
See F027	2,4,5-Trichlorophenoxyacetic acid
U234	sym-Trinitrobenzene (R, T)

U182	1,3,5-Trioxane,2,4,6-trimethyl-
U235	Tris (2,3-dibromopropyl)phosphate
U236	Trypan blue
U237	Uracil, 5[bis(2-chloromethyl)amino]
U237	Uracil mustard
U043	Vinyl chloride
U248	Warfarin and salts, when present at concentrations of 0.3% or less
U239	Xylene (I)
U200	Yohimban-16-carboxylic acid, II, 17-dimethoxy-18-[(3,4,5-trimethoxy-benzoyl)oxy]-, methyl ester
U249	Zinc phosphide, when present at concentrations of 10% or less
U237	2,4(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-

NR 605.10 PROCEDURES FOR MODIFYING THE HAZARDOUS WASTE LISTS. (1) Any person seeking to delist either a waste listed in s. NR 605.09 or a waste produced at a particular generation site from the hazardous waste lists in s. NR 605.09 which is also listed as a hazardous waste in the federal regulations promulgated by the EPA under 42 USC 6921(b) shall petition the EPA to delist that waste.

(2) Any person seeking to exclude a waste from the hazardous waste lists in s. NR 605.09 or a waste produced at a particular generation site which is not listed as a hazardous waste in the federal regulations promulgated by the EPA under 42 USC 6921(b) shall petition the department to delist that waste. The department shall either deny the petition in writing or proceed with rulemaking to delist the waste from the hazardous waste lists in s. NR 605.09.

(3) If the EPA deletes a hazardous waste from the hazardous waste lists in the federal regulations promulgated by the EPA under 42 USC 6921(b), the department shall proceed with rulemaking to either delete the waste from the hazardous waste lists in s. NR 605.09 or retain it. The department may retain the waste on the hazardous waste lists in s. NR 605.09 if the department determines that the waste has characteristics which identify it as a hazardous waste based on the criteria in ss. NR 605.07 and 605.08 and if the department determines that the retention is necessary to protect public health, safety or welfare. The department shall issue specific findings and conclusions on which its determination is based.

(4) If EPA deletes a hazardous waste from a particular generation site from the hazardous waste lists in the federal regulations promulgated by EPA under 42 USC 6921(b), the department may not regulate under chs. NR 600 to 685 those wastes that have been deleted.

(5) If the EPA adds an additional solid waste to the hazardous waste lists in the federal regulations promulgated by the EPA under 42 USC 6921(b), the department shall regulate the additional waste as a hazardous waste under chs. NR 600 to 685 as soon as EPA's action becomes final and shall proceed with rulemaking to adopt identical changes in s. NR 605.09.

(6) The department may include, or a person may petition the department to include, on the hazardous waste lists in s. NR 605.09 any additional solid waste which is not included on the hazardous waste lists in

the federal regulations promulgated by the EPA under 42 USC 6921(b) if the department determines that the solid waste has characteristics which identify it as a hazardous waste based on the criteria in ss. NR 605.07 and 605.08 and if the department determines that the inclusion is necessary to protect public health, safety or welfare. The department shall issue specific findings and conclusions on which its determination is based and shall include the additional solid waste on the lists of hazardous waste in s. NR 605.09 by rule.

Note: For the purpose of this section, petitions under subs. (2) and (6) are petitions for rules under s. 227.12, Stats.

NR 605.11 EP TOXICITY TEST PROCEDURE. The following test procedure shall be used when determining whether a solid waste is a hazardous waste under the provisions of s. NR 605.08(5).

(1) TOXIC EXTRACTION PROCEDURE (EP). (a) A representative sample of the waste to be tested, no less than 100 grams in size, shall be obtained using the methods specified in appendix I or any other method capable of yielding a representative sample within the meaning of s. NR 600.03(177).

Note: For detailed guidance on conducting the various aspects of the toxic extraction procedure see SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984, and update II in April, 1985. This publication is available from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C., 20402

and is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

For further guidance on filtration equipment, for procedures see SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985. This publication is available from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

and is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) The sample shall be separated into its component liquid and solid phases using the method described in sub. (2). If the percent solids obtained from using this method totals less than 0.5% of the original weight of the waste, the residue shall be discarded and the operator shall treat the liquid phase as the extract and proceed to par. (h). The percent solids is determined by drying the filter pad at 80°C until it reaches a constant weight and then calculating the percent solids using the following equation:

$$\frac{(\text{weight of pad} + \text{solid}) - (\text{tare weight of pad})}{\text{initial weight of sample}} \times 100 = \% \text{ solids}$$

(c) The solid material obtained from the separation procedure, in sub. (2), shall be evaluated for its particle size. If the solid material has a surface area per gram of material equal to, or greater than, 3.1 cm² or passes through a 9.5 mm (0.375 inch) standard sieve, the operator shall proceed to par. (d). If the surface area is smaller or the particle size larger than specified above, the solid material shall be prepared for extraction by crushing, cutting or grinding the material so that it passes through a 9.5 mm (0.375 inch)

sieve or, if the material is in a single piece, by subjecting the material to the structural integrity procedure described in sub. (3).

(d) The solid material obtained in par. (c) shall be weighed and placed in an extractor with 16 times its weight of deionized water. Do not allow the material to dry prior to weighing. For purposes of this test, an acceptable extractor is one which shall impart sufficient agitation to the mixture to not only prevent stratification of the sample and extraction fluid but also insure that all sample surfaces are continuously brought into contact with well mixed extraction fluid.

(e) After the solid material and deionized water are placed in the extractor, the operator shall begin agitation and measure the pH of the solution in the extractor. If the pH is greater than 5.0, the pH of the solution shall be decreased to 5.0 ± 0.2 by adding 0.5 N acetic acid. If the pH is equal to or less than 5.0, no acetic acid shall be added. The pH of the solution shall be monitored during the course of the extraction and if the pH rises above 5.2, 0.5N acetic acid shall be added to bring the pH down to 5.0 ± 0.2 . However, in no event shall the aggregate amount of acid added to the solution exceed 4 ml of acid per gram of solid. The mixture shall be agitated for 24 hours and maintained at 20 - 40°C (68 - 104°F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123 or its equivalent, in conjunction with a metering pump and reservoir or 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed:

1. A pH meter shall be calibrated in accordance with the manufacturer's specifications.

2. The pH of the solution shall be checked and, if necessary, 0.5N acetic acid shall be manually added to the extractor until the pH reaches 5.0 ± 0.2 . The pH of the solution shall be adjusted at 15, 30 and 60 minute intervals, moving to the next longer interval if the pH does not have to be adjusted more than 0.5N pH units.

3. The adjustment procedure shall be continued for at least 6 hours.

4. If at the end of the 24-hour extraction period, the pH of the solution is not below 5.2 and the maximum amount of acid (4 ml per gram of solids) has not been added, the pH shall be adjusted to 5.0 ± 0.2 and the extraction continued for an additional 4 hours, during which the pH shall be adjusted at one hour intervals.

(f) At the end of the 24-hour extraction period, deionized water shall be added to the extractor in an amount determined by the following equation:

$$V = (20)(W) - 16(W) - A, \text{ where,}$$

V = ml deionized water to be added

W = weight in grams of solid charged to extractor

A = ml of 0.5N acetic acid added during extraction

(g) The material in the extractor shall be separated into its component liquid and solid phases as described under sub. (2).

(h) The liquids resulting from pars. (b) and (g) shall be combined. This combined liquid, or the waste itself if it has less than 0.5% solids, as noted in par. (b), is the extract and shall be analyzed for the presence of any of the contaminants specified in table I of s. NR 605.08(5)(b) using the analytical procedures designated in sub. (4).

(2) SEPARATION PROCEDURE. (a) Equipment. A filter holder, designed for filtration media having a nominal pore size of 0.45 micrometers and capable of applying a 5.3 kg/cm² (75 psi) hydrostatic pressure to the solution being filtered shall be used. For mixtures containing nonabsorptive solids, where separation can be affected without imposing a 5.3 kg/cm² pressure differential, vacuum filters employing a 0.45 micrometers filter media may be used.

Note: For further guidance on filtration equipment for procedures see SW-846, "Test Methods for Evaluating Solid Waste". This publication is available from: The Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, and is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) Procedure. 1. Following manufacturer's directions, the filter unit shall be assembled with a filter bed consisting of a 0.45 micrometer filter membrane. For difficult or slow to filter mixtures a prefilter bed consisting of the following prefilters in increasing pore size (0.65 micrometer membrane, fine glass fiber prefilter, and coarse glass fiber prefilter) shall be used.

2. The waste shall be poured into the filtration unit.

3. The reservoir shall be slowly pressurized until liquid begins to flow from the filtrate outlet at which point the pressure in the filter shall be immediately lowered to 10-15 psig. Filtration shall be continued until liquid flow ceases.

4. The pressure shall be increased stepwise in 10 psi increments to 75 psig and filtration continued until flow ceases or the pressurizing gas begins to exit from the filtrate outlet.

5. The filter unit shall then be depressurized, the solid material removed and weighed and then transferred to the extraction apparatus, or, in the case of final filtration prior to analysis, discarded. Do not allow the material retained on the filter pad to dry prior to weighing.

6. The liquid phase shall be stored at 4°C for subsequent use in sub. (1)(h).

Note: This procedure is intended to result in separation of the "free" liquid portion of the waste from any solid matter having a particle size greater than 0.45 μ m. If the sample will not filter, various other separation techniques may be used to aid in the filtration. As described above, pressure filtration is employed to speed up the filtration process. This does not alter the nature of the separation. If liquid does not separate during filtration, the waste may be centrifuged. If separation occurs during centrifugation, the liquid portion, the centrifugate, is filtered through the 0.45 μ m filter prior to becoming mixed with the liquid portion of the waste obtained from the initial filtration. Any material that does not pass through the filter after centrifugation is considered a solid and is extracted.

(3) STRUCTURAL INTEGRITY PROCEDURE. (a) Equipment. A structural integrity tester having a 3.18 cm (1.25 in.) diameter hammer weighing 0.33 kg (0.73 lbs.) and having a free fall of 15.24 cm (6 in.) shall be used.

Note: The device may be obtained from Associated Design and Manufacturing Company, Alexandria, VA 22314, as Part No. 125.

(b) Procedure. 1. The sample holder should be filled with the material to be tested. If the sample of waste is a large monolithic block, a portion shall be cut from the block having the dimensions of 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder. For a fixated waste, samples may be cast in the form of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder for purposes of conducting this test. In such cases, the waste may be allowed to cure for 30 days prior to further testing.

2. The sample holder shall be placed into the structural integrity tester, then the hammer shall be raised to its maximum height and dropped. This shall be repeated 15 times.

3. The material shall be removed from the sample holder, weighed and transferred to the extraction apparatus for extraction.

(4) ANALYTICAL PROCEDURES FOR ANALYZING EXTRACT CONTAMINANTS. The test methods for analyzing the extract are as follows:

(a) For arsenic, barium, cadmium, chromium, lead, mercury, selenium or silver: "Methods for Chemical Analysis of Water and Wastes", as contained in SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985.

(b) For endrin; lindane; methoxychlor; toxaphene; 2,4-D; 2,4,5-TP Silvex: in "Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater", as contained in SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985.

(c) For all analyses, the method of standard addition shall be used for the quantification of species concentration. This method is described in SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985.

Note: This publication may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

This publication is available for inspection at the offices of the department, the secretary of state, and the revisor of statutes.

Note: For detailed guidance on conducting the various aspects of the toxic extraction procedure see SW-846, "Test Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984, and update II in April, 1985. This publication is available from:

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Washington, D.C., 20402

and is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

NR 605.12 ANALYTICAL METHODS. (1) Chemical and physical samples shall be analyzed by a laboratory certified or registered under ch. NR 149. The following tests are excluded from this requirement:

- (a) Physical tests of soil,
- (b) Air quality tests,
- (c) Gas tests,
- (d) Field pH tests,
- (e) Field conductivity,

- (f) Turbidity tests,
- (g) Water elevation,
- (h) Temperature,
- (i) Leachate-liner compatibility testing.

(2) Bacteriological and radiological samples shall be analyzed by the state laboratory of hygiene or at a laboratory approved or certified by the department of health and social services.

(3) Other chemical and physical samples shall be analyzed by a laboratory certified or registered under ch. NR 149. The department may allow, on a case-by-case basis, facilities to submit analytical test results from a laboratory that has not been certified, registered or approved by the department or the department of health and social services.

APPENDIX I - REPRESENTATIVE SAMPLING METHODS

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the following sampling protocols, for sampling waste with properties similar to the indicated materials, will be considered by the department to be representative of the waste:

- (1) For extremely viscous liquid - ASTM Standard D140-70
- (2) For crushed or powdered material - ASTM Standard D346-78
- (3) For soil or rock-like material - ASTM Standard D420-69
- (4) For soil-like material - ASTM Standard D1452-80
- (5) For fly ash-like material - ASTM Standard D2234-76

Note: The publications containing these standards may be obtained from the:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

These publications are available for inspection at the offices of the department, the secretary of state, and the revisor of statutes.

(6) For containerized liquid wastes - "COLIWASA" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846).

(7) For liquid waste in pits, ponds, lagoons and similar reservoirs - "Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846).

Note: This publication may be obtained from:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

This publication is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

APPENDIX II - CHEMICAL ANALYSIS TEST METHODS

Tables 1, 2 and 3 specify the appropriate analytical procedures, described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW 846 which shall be used to determine whether a sample contains a given Appendix III or IV toxic constituent.

Table 1 identifies each Appendix III or IV organic constituent along with the approved measurement method. Table 2 identifies the corresponding methods for inorganic species. Table 3 summarizes the contents of SW-846 and supplies specific section and method numbers for sampling and analysis methods.

Prior to final sampling and analysis method selection the analyst should consult the specific section or method described in SW-846 for additional guidance on which of the approved methods should be employed for a specific sample analysis situation.

Table 1-Analysis Methods for Organic Chemicals Contained in SW-846

Compound	Method Numbers
Acetonitrile	8030, 8240
Acrolein	8030, 8240
Acrylamide	8015, 8240
Acrylonitrile	8030, 8240
2-Amino-1-methylbenzene (o-Toluidine)	8250
4-Amino-1-methylbenzene (p-Toluidine)	8250
Aniline	8250
Benzene	8020, 8024
Benz(a)anthracene	8100, 8250, 8310
Benzo(a)pyrene	8100, 8250, 8310
Benzotrichloride	8120, 8250
Benzyl chloride	8120, 8250
Benzo(b)fluoranthene	8100, 8250, 8310
Bis(2-chloroethoxymethane)	8010, 8240
Bis(2-chloroethyl)ether	8010, 8240
Bis(2-chloroisopropyl)ether	8010, 8240
Carbon disulfide	8015, 8240
Carbon tetrachloride	8010, 8240
Chlordane	8080, 8250
Chlorinated biphenyls	8080, 8250
Chlorinated dibenzo-p-dioxins	8280
Chlorinated dibenzofurans	8280
Chloroacetaldehyde	8010, 8240
Chlorobenzene	8020, 8240
Chloroform	8010, 8240
Chloromethane	8010, 8240
2-Chlorophenol	8040, 8250
Chrysene	8100, 8250, 8310
Creosote ¹	8100, 8250
Cresol(s)	8040, 8250

Cresylic Acid(s)	8040, 8250
Dichlorobenzene(s)	8010, 8120, 8250
Dichloroethane(s)	8010, 8240
Dichloromethane	8010, 8240
Dichlorophenoxyacetic acid	8150, 8250
Dichloropropanol	8120, 8250
2,4-Dimethylphenol	8040, 8250
Dinitrobenzene	8090, 8250
4,6-Dinitro-o-cresol	8040, 8250
2,4-Dinitrotoluene	8090, 8250
2,6-Dinitrotoluene	8060, 8250
Endrin	8080, 8250
2-Ethoxyethanol	8030, 8240
Ethyl ether	8015, 8240
Ethylene dibromide	8010, 8240
Ethylene thiourea	8250, 8330
Formaldehyde	8015, 8240
Formic acid	8250
Heptachlor	8080, 8250
Hexachlorobenzene	8120, 8250
Hexachlorobutadiene	8120, 8250
Hexachloroethane	8010, 8240
Hexachlorocyclopentadiene	8120, 8250
Lindane	8080, 8250
Maleic anhydride	8250
Methanol	8010, 8240
Methomyl	8250
Methyl ethyl ketone	8015, 8240
Methyl isobutyl ketone	8015, 8240
Napthalene	8100, 8250
Napthoquinone	8090, 8250
Nitrobenzene	8090, 8250
4-Nitrophenol	8040, 8240
2-Nitropropane	8030, 8240
Paraldehyde (trimer of acetaldehyde)	8015, 8240
Pentachlorophenol	8040, 8250
Phenol	8040, 8250
Phorate	8140
Phosphorodithioic acid esters	8140
Phthalic anhydride	8090, 8250
2-Picoline	8090, 8250
Pyridine	8090, 8250
Tetrachlorobenzene(s)	8120, 8250
Tetrachloroethane(s)	8010, 8240
Tetrachloroethene	8010, 8240
Tetrachlorophenol	8040, 8250
Toluene	8020, 8024
Toluene diisocyanate(s)	8250
Toluenediamine	8250
2,4-Toluenediamine	8250
2,6-Toluenediamine	8250
3,4-Toluenediamine	8250
Toxaphene	8080, 8250
Trichloroethane	8010, 8240
Trichloroethene(s)	8010, 8240

Trichlorofluoromethane	8010, 8240
Trichlorophenol(s)	8040, 8250
2,4,5-Trichlorophenoxy propionic acid	8150, 8250
Trichloropropane	8010, 8240
Vinyl chloride	8010, 8240
Vinylidene chloride	8010, 8240
Xylene	8020, 8240

¹ Analyte for phenanthrene and carbazole; if these are present in a ratio between 1.4:1 and 5:1 creosote should be considered present.

Table 2-Analysis Methods for Inorganic Chemicals Contained in SW-846

Compound	First edition method(s)	Second edition method(s)
Antimony	8.50	7040, 7041
Arsenic.....	8.51	7060, 7061
Barium.....	8.52	7080, 7081
Cadmium.....	8.53	7090, 7091
Chromium.....	8.54	7190, 7191
Chromium: Hexavalent.....	8.545, 8.546, 8.547	7195, 7196, 7197
Lead.....	8.56	7420, 7421
Mercury.....	8.57	7470, 7471
Nickel.....	8.58	7520, 7521
Selenium.....	8.59	7740, 7741
Silver.....	8.60	7760, 7761
Cyanides.....	8.55	9010
Total Organic Halogen.....	8.66	9020
Sulfides.....	8.67	9030

Table 3-Sampling and Analysis Methods Contained in SW-846

Title	First edition		Second edition	
	Section No.	Method No.	Section No.	Method No.
Sampling of Solid Wastes	1.0	.....	1.0	.....
Development of Appropriate Sampling Plans	1.0	.....	1.1	.....
Regulatory and Scientific Objectives.....	1.0-2	.....	1.1.1	.....
Fundamental Statistical Concepts..	1.0-3	.....	1.1.2	.....
Basic Statistical Strategies.....	1.0-7	.....	1.1.3	.....
Simple Random Sampling.....	.....	.....	1.1.3.1	.....
Stratified Random Sampling.....	.....	.....	1.1.3.2	.....
Systematic Random Sampling.....	.....	.....	1.1.3.3	.....
Special Considerations.....	1.0-7	.....	.....	.....
Composite Sampling.....	.....	.....	1.1.4.1	.....
Subsampling.....	.....	.....	1.1.4.2	.....
Cost and Loss Functions.....	.....	.....	1.1.4.3	.....
Implementation of Sampling Plan.....	1.0-7	.....	1.2	.....
Selection of Sampling Equipment.....	.....	.....	1.2.1	.....
Composite Liquid Waste Sampler.....	3.2.1	.....	1.2.1.1	.....
Weighted Bottle.....	3.2.2	.....	1.2.1.2	.....
Dipper.....	3.2.3	.....	1.2.1.3	.....
Thief.....	3.2.4	.....	1.2.1.4	.....
Trier.....	3.2.5	.....	1.2.1.5	.....
Auger.....	3.2.6	.....	1.2.1.6	.....

Scoop and Shovel.....	3.2.7	.....	1.2.1.7	.....
Selection of Sample Containers.....	3.3	.....	1.2.2	.....
Processing and Storage of Samples.....	3.3	.....	1.2.3	.....
Documentation of Chain of Custody.....	2.0	.....	1.3	.....
Sample Labels.....	2.0-1	.....	1.3.1	.....
Sample Seals.....	2.0-3	.....	1.3.2	.....
Field Log Book.....	2.0-5	.....	1.3.3	.....
Chain-of-Custody Record.....	2.0-6	.....	1.3.4	.....
Sample Analysis Request Sheet.....	2.0-9	.....	1.3.5	.....
Sample Delivery to Laboratory.....	2.0-10	.....	1.3.6	.....
Shipping of Samples.....	2.0-10	.....	1.3.7	.....
Receipt and Logging of Sample.....	2.0-12	.....	1.3.8	.....
Assignment of Sample for Analysis.....	2.0-13	.....	1.3.9	.....
Sampling Methodology.....	3.0	.....	1.4	.....
Containers.....	3.2-2	.....	1.4.1	.....
Tanks.....	3.2-2	.....	1.4.2	.....
Waste Piles.....	3.2-2	.....	1.4.3	.....
Landfills and Lagoons.....	3.2-2	.....	1.4.4	.....
Waste Evaluation Procedures.....	.....	.....	2.0	.....
Characteristics of Hazardous Waste.....	.....	.....	2.1	.....
Ignitability.....	4.0	.....	2.1.1	.....
Pensky-Martens Closed-Cup Method.....	4.1	.....	2.1.1	1010
Setaflash Closed-Cup Method.....	4.1	.....	2.1.1	1020
Corrosivity.....	5.0	.....	2.1.2	.....
Corrosivity Toward Steel.....	5.3	.....	2.1.2	1110
Reactivity.....	6.0	.....	2.1.3	.....
Extraction Procedure Toxicity.....	7.0	.....	2.1.4	.....
Extraction Procedure Toxicity Test.....	7.1, 7.2,	.....	.....	.....
Method and Structural Integrity Test..	7.5	.....	.....	.....
Method and Structural Integrity Test..	7.4	.....	2.1.4	1310
Sample Workup Techniques.....	.....	.....	4.0	.....
Inorganic Techniques.....	8.49	.....	4.1	.....
Acid Digestion for Flame AAS.....	1	.....	4.1	3010
Acid Digestion for Furnace AAS.....	1	.....	4.1	3020
Acid Digestion of Oil, Grease, or Wax.....	8.49-9	.....	4.1	3030
Dissolution Procedure for Oil, Grease or Wax	8.49-8	.....	.....	.....
Alkaline Digestion.....	8.0	8.458	4.1	3060
Organic Techniques.....	8.0	.....	4.2	.....
Separatory Funnel Liquid-Liquid Extraction	9.0	9.1	4.2	3510
Continuous Liquid-Liquid Extraction.....	9.0	9.01	4.2	3520
Acid-Base Cleanup Extraction.....	8.0	8.84	4.2	3530
Soxhlet Extraction.....	8.0	8.86	4.2	3540
Sonication Extraction.....	8.0	8.85	4.2	3550
Sample Introduction Techniques.....	.....	.....	5.0	.....
Headspace.....	8.0	8.82	5.0	5020
Purge-and-Trap.....	8.0	8.83	5.0	5030
Inorganic Analytical Methods.....	8.0	.....	7.0	.....
Antimony, Flame AAS.....	8.0	8.50	7.0	7470
Antimony, Furnace AAS.....	8.0	8.50	7.0	7471
Arsenic, Flame AAS.....	8.0	8.51	7.0	7060
Arsenic, Furnace AAS.....	8.0	8.51	7.0	7061
Barium, Flame AAS.....	8.0	8.52	7.0	7080
Barium, Furnace AAS.....	8.0	8.52	7.0	7081
Cadmium, Flame AAS.....	8.0	8.53	7.0	7130
Cadmium, Furnace AAS.....	8.0	8.53	7.0	7131
Chromium, Flame AAS.....	8.0	8.54	7.0	7090
Chromium, Furnace AAS.....	8.0	8.54	7.0	7191
Chromium, Hexavalent, Coprecipitation.....	8.0	8.545	7.0	7195
Chromium, Hexavalent, Colorimetric.....	8.0	8.546	7.0	7196
Chromium, Hexavalent, Chelation.....	8.0	8.547	7.0	7197
Lead, Flame AAS.....	8.0	8.56	7.0	7420
Lead, Furnace AAS.....	8.0	8.56	7.0	7421
Mercury, Cold Vapor, Liquid.....	8.0	8.57	7.0	7470
Mercury, Cold Vapor, Solid.....	8.0	8.57	7.0	7471
Nickel, Flame AAS.....	8.0	8.58	7.0	7520
Nickel, Furnace AAS.....	8.0	8.58	7.0	7521
Selenium, Flame AAS.....	8.0	8.59	7.0	7740
Selenium, Gaseous Hydride AAS.....	8.0	8.59	7.0	7741
Silver, Flame AAS.....	8.0	8.60	7.0	7760

Silver, Furnace AAS.....	8.0	8.60	7.0	7761
Organic Analytical Methods.....	8.0	.....	8.0	.....
Gas Chromatographic Methods.....	8.0	.....	8.1	.....
Halogenated Volatile Organics.....	8.0	8.01	8.1	8010
Nonhalogenated Volatile Organics.....	8.0	8.01	8.1	8015
Aromatic Volatile Organics.....	8.0	8.02	8.1	8020
Acrolein, Acrylonitrile, Acetonitrile....	8.0	8.03	8.1	8030
Phenols.....	8.0	8.04	8.1	8040
Phthalate Esters.....	8.0	8.06	8.1	8060
Organochlorine Pesticides and PCBs.....	8.0	8.08	8.1	8080
Nitroaromatics and Cyclic Ketones.....	8.0	8.09	8.1	8090
Polynuclear Aromatic Hydrocarbons	8.0	8.10	8.1	8100
Chlorinated Hydrocarbons.....	8.0	8.12	8.1	8120
Organophosphorus Pesticides.....	8.0	8.22	8.1	8140
Chlorinated Herbicides.....	8.0	8.40	8.1	8150
Gas Chromatographic/Mass Spectroscopy Methods (GC/MS).....	8.0	.....	8.2	.....
GC/MS Volatiles.....	8.0	8.24	8.2	8240
GC/MS Semi-Volatiles, Packed Column.....	8.0	8.25	8.2	8250
GC/MS Semi-Volatiles, Capillary.....	8.0	8.27	8.2	8270
Analysis of Chlorinated Dioxins and Dibenzofurans.....	.....	.....	8.2	8280
High Performance Liquid Chromatographic Methods (HPLC).....	8.0	.....	8.3	.....
Polynuclear Aromatic Hydrocarbons.....	8.0	8.10	8.3	8310
Miscellaneous Analytical Methods.....	8.0	.....	9.0	.....
Cyanide; Total and Amenable to Chlorination...	8.0	8.55	9.0	9010
Total Organic Halogen (TOX).....	8.0	8.66	9.0	9020
Sulfides.....	8.0	8.67	9.0	9030
pH Measurement.....	5.0	5.2	9.0	9040
Quality Control/Quality Assurance.....	10.0	.....	10.1	.....
Introduction.....	10.0	.....	10.1	.....
Program Design.....	10.0	.....	10.2	.....
Sampling.....	10.0	.....	10.3	.....
Analysis.....	10.0	.....	10.4	.....
Data Handling.....	10.0	.....	10.5	.....

¹ See specific metal.

APPENDIX III - BASIS FOR LISTING HAZARDOUS WASTES

BASIS FOR LISTING HAZARDOUS WASTES

Hazardous Waste Number	Hazardous Constituents for Which Listed
F001	tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorinated fluorocarbons, carbon tetrachloride
F002	tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloroethylene, 1,1,2-trichloro-1,2,2-trifluoroethane, o-dichlorobenzene, trichlorofluoromethane
F003	N.A.
F004	cresols and cresylic acid, nitrobenzene
F005	toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, 2-ethoxyethanol,

	benzene, 2-nitropropane
F006	cadmium, hexavalent chromium, nickel, cyanide (complexed)
F007	cyanide (salts)
F008	cyanide (salts)
F009	cyanide (salts)
F010	cyanide (salts)
F011	cyanide (salts)
F012	cyanide (complexed)
F019	hexavalent chromium, cyanide (complexed)
F020	Tetra- and pentachlorodibenzo-p-dioxins; tetra and pentachlorodi-benzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F021	Penta- and hexachlorodibenzo-p-dioxins; penta- and hexachlorodibenzofurans; pentachlorophenol and its derivatives.
F022	Tetra-, penta- and hexachlorodibenzo-p-dioxins; tetra-, penta- and hexachlorodibenzofurans.
F023	Tetra- and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F024	chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1-2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, benzene, chlorobenzene, dichlorobenzene, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene
F026	Tetra-, penta- and hexachlorodibenzo-p-dioxins; tetra-, penta- and hexachlorodibenzofurans.
F027	Tetra-, penta- and hexachlorodibenzo-p-dioxins; tetra-, penta- and hexachlorodibenzofurans; tri-, tetra- and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F028	Tetra-, penta- and hexachlorodibenzo-p-dioxins; tetra-, penta- and hexachlorodibenzofurans; tri-, tetra- and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine and other salts.
F500	Same as F001 and F002

K001	benz(a)anthracene, benzo(a)pyrene, chrysene, naphthalene, phenol, 2-chlorophenol, 2,4-dimethylphenyl, trichlorophenols, pentachlorophenol, tetrachlorophenols, p-chloro-m-cresol, 2,4-dinitrophenol, creosote, fluoranthene, benzo(b)fluoranthene, indeno (1,2,3-cd) pyrene, dibenz(a)anthracene, acenaphthalene, pentachlorophenol
K002	hexavalent chromium, lead
K003	hexavalent chromium, lead
K004	hexavalent chromium
K005	hexavalent chromium, lead
K006	hexavalent chromium
K007	cyanide (complexed), hexavalent chromium
K008	hexavalent chromium
K009	chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid
K010	chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde
K011	acrylonitrile, acetonitrile, hydrocyanic acid
K013	hydrocyanic acid, acrylonitrile, acetonitrile
K014	acetonitrile, acrylamide
K015	benzyl chloride, chlorobenzene, toluene, benzotrichloride
K016	hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene
K017	epichlorohydrin, chloroethers (bis(chloromethyl) ether and bis (2-chloroethyl) ethers), trichloropropane, dichloropropanols
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene
K019	ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride
K020	ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride
K021	antimony, carbon tetrachloride, chloroform
K022	phenol, tars (polycyclic aromatic hydrocarbons)

K023	phthalic anhydride, maleic anhydride
K024	phthalic anhydride, 1,4 naphthoquinone
K025	meta-dinitrobenzene, 2,4-dinitrotoluene
K026	paraldehyde, pyridines, 2-picoline
K027	toluene diisocyanate, toluene-2,4-diamine
K028	1,1,1-trichloroethane, vinyl chloride
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform
K030	hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride
K031	arsenic
K032	hexachlorocyclopentadiene
K033	hexachlorocyclopentadiene
K034	hexachlorocyclopentadiene
K035	creosote, benzo(b)fluoroanthene, benzo(a)pyrene, chrysene, naphthalene, fluoranthene, indeno(1,2,3-cd)pyrene, benzo(a)anthracene, dibenzo(a)anthracene, acenaphthalene
K036	toluene, phosphorodithioic and phosphorothioic acid esters
K037	toluene, phosphorodithioic and phosphorothioic acid esters
K038	phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K039	phosphorodithioic and phosphorothioic acid esters
K040	phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K041	toxaphene
K042	hexachlorobenzene; ortho-dichlorobenzene
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol
K044	N.A.
K045	N.A.
K046	lead
K047	N.A.
K048	chromium (VI), lead

K049	chromium (VI), lead
K050	chromium (VI)
K051	chromium (VI), lead
K052	lead
K060	cyanide, naphthalene, phenolic compounds, arsenic
K061	chromium (VI), lead, cadmium
K062	chromium (VI), lead
K069	chromium (VI), lead, cadmium
K071	mercury
K073	chloroform, carbon tetrachloride, hexachloroethane, trichloroethane, tetrachlorethylene, dichloroethylene, 1,1,2,2-tetrachloroethane
K083	aniline, nitrobenzene, diphenylamine, phenylenediamine
K084	arsenic
K085	benzene, dichlorobenzenes, trichlorobenzenes, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, benzyl chloride
K086	chromium (VI), lead
K087	phenol, naphthalene
K093	Phthalic anhydride, maleic anhydride
K094	Phthalic anhydride
K095	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane
K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane
K097	Chlordane, heptachlor
K098	Toxaphene
K099	2,4-dichlorophenol, 2,4,6-trichlorophenol
K100	Hexavalent chromium, lead, cadmium
K101	Arsenic
K102	Arsenic
K103	Aniline, nitrobenzene, phenylenediamine
K104	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine

K105	Benzene, monochlorobenzene, dichlorobenzene, 2,4,6-trichlorophenol
K106	Mercury
K111	2,4-Dinitrotoluene
K112	2,4-Toluediamine, o-toluidine, p-toluidine, aniline
K113	2,4-Toluediamine, o-toluidine, p-toluidine, aniline
K114	2,4-Toluediamine, o-toluidine, p-toluidine
K115	2,4-Toluediamine
K116	Carbon tetrachloride, tetrachloroethylene, chloroform, phosgene
K117	Ethylene dibromide
K118	Ethylene dibromide
K123	Ethylene thiourea
K124	Ethylene thiourea
K125	Ethylene thiourea
K126	Ethylene thiourea
K136	Ethylene dibromide

N.A. - Waste is hazardous because it meets either the ignitability, corrosivity or reactivity characteristics.

APPENDIX IV - HAZARDOUS CONSTITUENTS

A solid waste which contains any of the hazardous constituents listed in this appendix shall be listed in s. NR 605.09 as a hazardous waste unless the department concludes, after considering the factors in s. NR 605.08(6)(a)3., that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed.

Note: Section NR 605.08(6)(a)3. identifies criteria for listing hazardous waste. A waste containing any of the constituents in this appendix is examined by the department using these criteria. If the department determines the waste should be listed, it will be included under: Table II, Hazardous Waste from Nonspecific Sources; Table III, Hazardous Waste from Specific Sources; Table IV, Acute Hazardous Commercial Chemical Products and Manufacturing Chemical Intermediates; or Table V, Toxic Commercial Chemical Products and Manufacturing Chemical Intermediates. One shall not assume that a waste containing one or more of the constituents in this appendix will automatically be a hazardous waste. In this appendix, the abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name.

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
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Acetonitrile.....	Same.....	75-05-8....	U003
Acetophenone.....	Ethanone, 1-phenyl-.....	98-86-2....	U004
2-Acetylaminefluorone.....	Acetamide, N-9H-fluoren-2-yl-.....	53-96-3....	U005
Acetyl chloride.....	Same.....	75-36-5....	U006
1-Acetyl-2-thiourea.....	Acetamide, N-(aminothioxomethyl)-.....	591-08-2...	P002
Acrolein.....	2-Propenal.....	107-02-8...	P003
Acrylamide.....	2-Propenamide.....	79-06-1....	U007
Acrylonitrile.....	2-Propenenitrile.....	107-13-1...	U009
Aflatoxins.....	Same.....	1402-68-2..	
Aldicarb.....	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime.....	116-06-3...	P070
Aldrin.....	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta) -.....	309-00-2...	P004
Allyl alcohol.....	2-Propen-1-ol.....	107-18-6...	P005
Aluminum phosphide.....	Same.....	20859-73-8.	P006
4-Aminobiphenyl.....	[1,1'-Biphenyl]-4-amine.....	92-67-1....	
5-(Aminomethyl)-3-isoxazolol.....	3(2H)-Isoxazolone, 5-(aminomethyl)-.....	2763-96-4..	P007
4-Aminopyridine.....	4-Pyridinamine.....	504-24-5...	P008
Amitrole.....	1H-1,2,4-Triazol-3-amine.....	61-82-5....	U011
Ammonium vanadate.....	Vanadic acid, ammonium salt.....	7803-55-6..	P119
Aniline.....	Benzenamine.....	62-53-3....	U012
Antimony.....	Same.....	7440-36-0..	
Antimony compounds, N.O.S. ¹.....	.....	.....
Aramite.....	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl	140-57-8...	

	ester.....		
Arsenic.....	Same.....	7440-38-2..	
		
Arsenic compounds, N.O.S. ¹.....	.....	.....
Arsenic acid.....	Arsenic acid H3AsO4.....	7778-39-4..	P010
		
Arsenic pentoxide.....	Arsenic oxide As2O5.....	1303-28-2..	P011
		
Arsenic trioxide.....	Arsenic oxide As2O3.....	1327-53-3..	P012
		
Auramine.....	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl].....	492-80-8... U014	
		
Azaserine.....	L-Serine, diazoacetate (ester).....	115-02-6... U015	
		
Barium.....	Same.....	7440-39-3..	
		
Barium compounds, N.O.S. ¹.....	.....	.....
Barium cyanide.....	Same.....	542-62-1... P013	
		
Benz[c]acridine.....	Same.....	225-51-4... U016	
		
Benz[a]anthracene.....	Same.....	56-55-3.... U018	
		...	
Benzal chloride.....	Benzene, (dichloromethyl)-.....	98-87-3.... U017	
		...	
Benzene.....	Same.....	71-43-2.... U019	
		...	
Benzeneearsonic acid.....	Arsonic acid, phenyl-.....	98-05-5....	
		...	
Benzidine.....	[1,1'-Biphenyl]-4,4'-diamine.....	92-87-5.... U021	
		...	
Benzo[b]fluoranthene.....	Benz[e]acephenanthrylene.....	205-99-2... U022	
		
Benzo[j]fluoranthene.....	Same.....	205-82-3... U023	
		
Benzo[a]pyrene.....	Same.....	50-32-8.... U024	
		...	
p-Benzoquinone	2,5-Cyclohexadiene-1,4-dione	106-51-4 U197	
		
Benzotrichloride.....	Benzene, (trichloromethyl)-.....	98-07-7.... U025	
		...	
Benzyl chloride.....	Benzene, (chloromethyl)-.....	100-44-7... P028	
		
Beryllium.....	Same.....	7440-41-7.. P015	
		

Beryllium compounds, N.O.S. ¹.....	.....	.....
Bromoacetone.....	2-Propanone, 1-bromo-.....	598-31-2...	P017
		
Bromoform.....	Methane, tribromo-.....	75-25-2....	U225
		...	
4-Bromophenyl phenyl ether.....	Benzene, 1-bromo-4-phenoxy-.....	101-55-3...	U030
		
Brucine.....	Strychnidin-10-one, 2,3-dimethoxy-.....	357-57-3...	P018
		
Butyl benzyl phthalate.....	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester.....	85-68-7....	
		...	
Cacodylic acid.....	Arsinic acid, dimethyl-.....	75-60-5....	U136
		...	
Cadmium.....	Same.....	7440-43-9..	
		
Cadmium compounds, N.O.S. ¹.....	.....	.....
Calcium chromate.....	Chromic acid H ₂ CrO ₄ , calcium salt.....	13765-19-0.	U032
		
Calcium cyanide.....	Calcium cyanide Ca(CN) ₂	592-01-8...	P021
		
Carbon disulfide.....	Same.....	75-15-0....	P022
		...	
Carbon oxyfluoride.....	Carbonic difluoride.....	353-50-4...	U033
		
Carbon tetrachloride.....	Methane, tetrachloro-.....	56-23-5....	U211
		...	
Chloral.....	Acetaldehyde, trichloro-.....	75-87-6....	U034
		...	
Chlorambucil.....	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-.....	305-03-3...	U035
		
Chlordane.....	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.....	57-74-9....	U036
		...	
Chlordane (alpha and gamma isomers).....	.....	.....	U036
Chlorinated benzenes, N.O.S. ¹.....	.....	.....
Chlorinated ethane, N.O.S. ¹.....	.....	.....
Chlorinated fluorocarbons, N.O.S. ¹.....	.....	.....
Chlorinated naphthalene, N.O.S. ¹.....	.....	.....
Chlorinated phenol, N.O.S. ¹.....	.....	.....
Chlornaphazin.....	Naphthalenamine, N,N'-bis(2-chloroethyl)-.....	494-03-1...	U026
		
Chloroacetaldehyde.....	Acetaldehyde, chloro-.....	107-20-0...	P023
		

Chloroalkyl ethers, N.O.S. ¹.....	.....	.....
p-Chloroaniline.....	Benzenamine, 4-chloro-.....	106-47-8...	P024
Chlorobenzene.....	Benzene, chloro-.....	108-90-7...	U037
Chlorobenzilate.....	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester.....	510-15-6...	U038
p-Chloro-m-cresol.....	Phenol, 4-chloro-3-methyl-.....	59-50-7... ...	U039
2-Chloroethyl vinyl ether.....	Ethene, (2-chloroethoxy)-.....	110-75-8...	U042
Chloroform.....	Methane, trichloro-.....	67-66-3... ...	U044
Chloromethyl methyl ether.....	Methane, chloromethoxy-.....	107-30-2...	U046
beta-Chloronaphthalene.....	Naphthalene, 2-chloro-.....	91-58-7... ...	U047
o-Chlorophenol.....	Phenol, 2-chloro-.....	95-57-8... ...	U048
1-(o-Chlorophenyl)thiourea.....	Thiourea, (2-chlorophenyl)-.....	5344-82-1..	P026
Chloroprene.....	1,3-Butadiene, 2-chloro-.....	126-99-8...	
3-Chloropropionitrile.....	Propanenitrile, 3-chloro-.....	542-76-7...	P027
Chromium.....	Same.....	7440-47-3..	
Chromium compounds, N.O.S. ¹.....	.....	.....
Chrysene.....	Same.....	218-01-9...	U050
Citrus red No. 2.....	2-Naphthalenol, 1-[(2,5-dimethoxyphenyl)azo]-.....	6358-53-8..	
Coal tar creosote.....	Same.....	8007-45-2..	
Copper cyanide.....	Copper cyanide CuCN.....	544-92-3...	P029
Creosote.....	Same.....	.....	U051
Cresol (Cresylic acid).....	Phenol, methyl-.....	1319-77-3..	U052
Crotonaldehyde.....	2-Butenal.....	4170-30-3..	U053
Cyanides (soluble salts and complexes) N.O.S. ¹.....	.....	.....	P030
Cyanogen.....	Ethanedinitrile.....	460-19-5...	P031

		
Cyanogen bromide.....	Cyanogen bromide (CN)Br.....	506-68-3...	U246
Cyanogen chloride.....	Cyanogen chloride (CN)Cl.....	506-77-4...	P033
Cycasin.....	beta-D-Glucopyranoside, (methyl-ONN- azoxy)methyl.....	14901-08-7.	
2-Cyclohexyl-4,6-dinitrophenol.....	Phenol, 2-cyclohexyl-4,6-dinitro.....	131-89-5...	P034
Cyclophosphamide.....	2H-1,3,2-Oxazaphosphorin-2-amine, N,N- bis(2-chloroethyl)tetrahydro-, 2- oxide.....	50-18-0.... ...	U058
2,4-D.....	Acetic acid, (2,4-dichlorophenoxy)-.....	94-75-7.... ...	U240
2,4-D, salts, esters.....	.....	.....	U240
Daunomycin.....	5,12-Naphthacenedione, 8-acetyl-10- [(3- amino-2,3,6-trideoxy-alpha-L-lyxo- hexopyranosyl)oxy]-7,8,9,10- tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-.....	20830-81-3.	U059
DDD.....	Benzene, 1,1'-(2,2- dichloroethylidene)bis[4-chloro-.....	72-54-8.... ...	U060
DDE.....	Benzene, 1,1'-(dichloroethenylidene)bis[4- chloro-.....	72-55-9.... ...	
DDT.....	Benzene, 1,1'-(2,2,2- trichloroethylidene)bis[4-chloro-.....	50-29-3.... ...	U061
Diallate.....	Carbamothioic acid, bis(1-methylethyl)-, S- (2,3-dichloro-2-propenyl) ester.....	2303-16-4..	U062
Dibenz[a,h]acridine.....	Same.....	226-36-8...	
Dibenz[a,j]acridine.....	Same.....	224-42-0...	
Dibenz[a,h]anthracene.....	Same.....	53-70-3.... ...	U063
7H-Dibenzo[c,g]carbazole.....	Same.....	194-59-2...	
Dibenzo[a,e]pyrene.....	Naphtho[1,2,3,4-def]chrysene.....	192-65-4...	
Dibenzo[a,h]pyrene.....	Dibenzo[b,def]chrysene.....	189-64-0...	
Dibenzo[a,i]pyrene.....	Benzo[rsst]pentaphene.....	189-55-9...	U064
1,2-Dibromo-3-chloropropane.....	Propane, 1,2-dibromo-3-chloro-.....	96-12-8.... ...	U066
Dibutyl phthalate.....	1,2-Benzenedicarboxylic acid, dibutyl ester.....	84-74-2.... ...	U069
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p-Dichlorobenzene.....	Benzene, 1,4-dichloro-.....	106-46-7...	U072
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3,3'-Dichlorobenzidine.....	[1,1'-Biphenyl]-4,4'-diamine, 3,3'- dichloro-.....	91-94-1.... ...	U073
1,4-Dichloro-2-butene.....	2-Butene, 1,4-dichloro-.....	764-41-0...	U074
Dichlorodifluoromethane.....	Methane, dichlorodifluoro-.....	75-71-8.... ...	U075
Dichloroethylene, N.O.S. ¹	Dichloroethylene.....	25323-30-2.	
1,1-Dichloroethylene.....	Ethene, 1,1-dichloro-.....	75-35-4.... ...	U078
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Dichloroethyl ether.....	Ethane, 1,1'-oxybis[2-chloro-.....	111-44-4...	U025
Dichloroisopropyl ether.....	Propane, 2,2'-oxybis[2-chloro-.....	108-60-1...	U027
Dichloromethoxy ethane.....	Ethane, 1,1'-[methylenebis(oxy)]bis[2- chloro-.....	111-91-1...	U024
Dichloromethyl ether.....	Methane, oxybis[chloro-.....	542-88-1...	P016
2,4-Dichlorophenol.....	Phenol, 2,4-dichloro-.....	120-83-2...	U081
2,6-Dichlorophenol	Phenol, 2,6-dichloro-	87-65-0	U082
Dichlorophenylarsine.....	Arsonous dichloride, phenyl-.....	696-28-6...	P036
Dichloropropane, N.O.S. ¹	Propane, dichloro-.....	26638-19-7.	
Dichloropropanol, N.O.S. ¹	Propanol, dichloro-.....	26545-73-3.	
Dichloropropene, N.O.S. ¹	1-Propene, dichloro-.....	26952-23-8.	
1,3-Dichloropropene.....	1-Propene, 1,3-dichloro-.....	542-75-6...	U084
Dieldrin.....	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- octahydro-, (1aalpha,2beta,2alpha,3beta,6beta,6alpha, 7beta,7alpha)-.....	60-57-1.... ...	P037
1,2:3,4-Diepoxybutane.....	2,2½-Bioxirane.....	1464-53-5..	U085

Diethylarsine.....	Arsine, diethyl-.....	692-42-2...	P038
1,4-Diethyleneoxide.....	1,4-Dioxane.....	123-91-1...	U108
Diethylhexyl phthalate.....	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester.....	117-81-7...	U028
N,N'-Diethylhydrazine.....	Hydrazine, 1,2-diethyl-.....	1615-80-1..	U086
O,O-Diethyl S-methyl dithiophosphate.....	Phosphorodithioic acid, O,O-diethyl S-methyl ester.....	3288-58-2..	U087
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Diethyl phthalate.....	1,2-Benzenedicarboxylic acid, diethyl ester.....	84-66-2.... ...	U088
O,O-Diethyl O-pyrazinyl phosphorothioate.....	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester.....	297-97-2...	P040
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Dihydrosafrole.....	1,3-Benzodioxole, 5-propyl-.....	94-58-6.... ...	U090
Diisopropylfluorophosphate (DFP).....	Phosphorofluoridic acid, bis(1-methylethyl) ester.....	55-91-4.... ...	P043
Dimethoate.....	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester.....	60-51-5.... ...	P044
3,3'-Dimethoxybenzidine.....	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-.....	119-90-4...	U091
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7,12-Dimethylbenz[a]anthracene.....	Benz[a]anthracene, 7,12-dimethyl-.....	57-97-6.... ...	U094
3,3'-Dimethylbenzidine.....	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-.....	119-93-7...	U095
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1,1-Dimethylhydrazine.....	Hydrazine, 1,1-dimethyl-.....	57-14-7.... ...	U098
1,2-Dimethylhydrazine.....	Hydrazine, 1,2-dimethyl-.....	540-73-8...	U099
alpha,alpha-Dimethylphenethylamine.....	Benzeneethanamine, alpha,alpha-dimethyl-.....	122-09-8...	P046
2,4-Dimethylphenol.....	Phenol, 2,4-dimethyl-.....	105-67-9...	U101
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4,6-Dinitro-o-cresol.....	Phenol, 2-methyl-4,6-dinitro-.....	534-52-1...	P047
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2,4-Dinitrophenol.....	Phenol, 2,4-dinitro-.....	51-28-5.... ...	P048
2,4-Dinitrotoluene.....	Benzene, 1-methyl-2,4-dinitro-.....	121-14-2...	U105
2,6-Dinitrotoluene.....	Benzene, 2-methyl-1,3-dinitro-.....	606-20-2...	U106
Dinoseb.....	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7.... ...	P020
Di-n-octyl phthalate.....	1,2-Benzenedicarboxylic acid, dioctyl ester.....	117-84-0...	U017
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1,2-Diphenylhydrazine.....	Hydrazine, 1,2-diphenyl-.....	122-66-7...	U109
Di-n-propylnitrosamine.....	1-Propanamine, N-nitroso-N-propyl-.....	621-64-7...	U111
Disulfoton.....	Phosphorodithioic acid, O,O-diethyl S-[2- (ethylthio)ethyl] ester.....	298-04-4...	P039
Dithiobiuret.....	Thioimidodicarbonic diamide [(H2N)C(S)]2NH	541-53-7...	P049
Endosulfan.....	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a- hexahydro-, 3-oxide.....	115-29-7...	P050
Endothall.....	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid.....	145-73-3...	P088
Endrin.....	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta, 7beta,7aalpha)-.....	72-20-8.... ...	P051
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Epichlorohydrin.....	Oxirane, (chloromethyl)-.....	106-89-8...	U041
Epinephrine.....	1,2-Benzenediol, 4-[1-hydroxy-2- (methylamino)ethyl]-, (R)-.....	51-43-4.... ...	P042
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Ethylenebisdithiocarbamic acid.....	Carbamodithioic acid, 1,2-ethanediylbis-	111-54-6...	U114

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Ethylene glycol monoethyl ether.....	Ethanol, 2-ethoxy-.....	110-80-5...	U359
Ethyleneimine.....	Aziridine.....	151-56-4...	P054
Ethylene oxide.....	Oxirane.....	75-21-8... ...	U115
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Ethyl methacrylate.....	2-Propenoic acid, 2-methyl-, ethyl ester.....	97-63-2... ...	U118
Ethyl methanesulfonate.....	Methanesulfonic acid, ethyl ester.....	62-50-0... ...	U119
Famphur.....	Phosphorothioic acid, O-[4- [(dimethylamino)sulfonyl]phenyl] O,O- dimethyl ester.....	52-85-7... ...	P097
Fluoranthene.....	Same.....	206-44-0...	U120
Fluorine.....	Same.....	7782-41-4...	P056
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Fluoroacetic acid, sodium salt.....	Acetic acid, fluoro-, sodium salt.....	62-74-8... ...	P058
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Heptachlor epoxide.....	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a- hexa- hydro-, (1aalpha,1bbeta,2alpha,5alpha,5abeta,6beta, 6aalpha)-.....	1024-57-3...	
Heptachlor epoxide (alpha, beta, and gamma isomers).....	

Hexachlorobenzene.....	Benzene, hexachloro-.....	118-74-1...	U127
Hexachlorobutadiene.....	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87-68-3....	U128
Hexachlorocyclopentadiene.....	1,3-Cyclopentadiene, 1,2,3,4,5,5- hexachloro-.....	77-47-4....	U130
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Hexachlorodibenzofurans.....	
Hexachloroethane.....	Ethane, hexachloro-.....	67-72-1....	U131
Hexachlorophene.....	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70-30-4....	U132
Hexachloropropene.....	1-Propene, 1,1,2,3,3,3-hexachloro-.....	1888-71-7..	U243
Hexaethyl tetraphosphate.....	Tetraphosphoric acid, hexaethyl ester.....	757-58-4...	P062
Hydrazine.....	Same.....	302-01-2...	U133
Hydrogen cyanide.....	Hydrocyanic acid.....	74-90-8....	P063
Hydrogen fluoride.....	Hydrofluoric acid.....	7664-39-3..	U134
Hydrogen sulfide.....	Hydrogen sulfide H ₂ S.....	7783-06-4..	U135
Indeno[1,2,3-cd]pyrene.....	Same.....	193-39-5...	U137
Iron dextran.....	Same.....	9004-66-4..	U139
Isobutyl alcohol.....	1-Propanol, 2-methyl-.....	78-83-1....	U140
Isodrin.....	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a- hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-	465-73-6...	P060
Isosafrole.....	1,3-Benzodioxole, 5-(1-propenyl)-.....	120-58-1...	U141
Kepone.....	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2- one, 1,1a,3,3a,4,5,5,5a,5b,6- decachlorooctahydro-.....	143-50-0...	U142
Lasiocarpine.....	2-Butenoic acid, 2-methyl-,7-[[2,3- dihydroxy-2-(1-methoxyethyl)-3-methyl-1- oxyl oxobutoxy]methyl]-2,3,5,7a- tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-.....	303-34-1...	U143
Lead.....	Same.....	7439-92-1..	

Lead compounds, N.O.S. ¹.....	.....	.....
Lead acetate.....	Acetic acid, lead(2+) salt.....	301-04-2...	U144
Lead phosphate.....	Phosphoric acid, lead(2+) salt (2:3).....	7446-27-7..	U145
Lead subacetate.....	Lead, bis(acetato-O)tetrahydroxytri.....	1335-32-6..	U146
Lindane.....	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-	58-89-9.... ...	U129
Maleic anhydride.....	2,5-Furandione.....	108-31-6...	U147
Maleic hydrazide.....	3,6-Pyridazinedione, 1,2-dihydro.....	123-33-1...	U148
Malononitrile.....	Propanedinitrile.....	109-77-3...	U149
Melphalan.....	L-Phenylalanine, 4-[bis(2- chloroethyl)aminol]-.....	148-82-3...	U150
Mercury.....	Same.....	7439-97-6..	U151
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Mercury fulminate.....	Fulminic acid, mercury(2+) salt.....	628-86-4...	P065
Methacrylonitrile.....	2-Propenenitrile, 2-methyl.....	126-98-7...	U152
Methapyrilene.....	1,2-Ethanediamine, N,N-dimethyl-N'-2- pyridinyl-N'-(2-thienylmethyl)-.....	91-80-5.... ...	U155
Methomyl.....	Ethanimidothioic acid, N- [[methylamino)carbonyl]oxy]-, methyl ester.....	16752-77-5.	P066
Methoxychlor.....	Benzene, 1,1'-(2,2,2- trichloroethylidene)bis[4-methoxy-.....	72-43-5.... ...	U247
Methyl bromide.....	Methane, bromo-.....	74-83-9.... ...	U029
Methyl chloride.....	Methane, chloro-.....	74-87-3.... ...	U045
Methyl chlorocarbonate.....	Carbonochloridic acid, methyl ester.....	79-22-1.... ...	U156
Methyl chloroform.....	Ethane, 1,1,1-trichloro-.....	71-55-6.... ...	U226
3-Methylcholanthrene.....	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56-49-5....	U157
4,4'-Methylenebis(2-chloroaniline).....	Benzenamine, 4,4'-methylenebis[2-chloro-	101-14-4...	U158
Methylene bromide.....	Methane, dibromo-.....	74-95-3.... ...	U068

Methylene chloride.....	Methane, dichloro-.....	75-09-2....	U080
		...	
Methyl ethyl ketone (MEK).....	2-Butanone.....	78-93-3....	U159
		...	
Methyl ethyl ketone peroxide.....	2-Butanone, peroxide.....	1338-23-4..	U160
		
Methyl hydrazine.....	Hydrazine, methyl-.....	60-34-4....	P068
		...	
Methyl iodide.....	Methane, iodo-.....	74-88-4....	U138
		...	
Methyl isocyanate.....	Methane, isocyanato-.....	624-83-9...	P064
		
2-Methyl lactonitrile.....	Propanenitrile, 2-hydroxy-2-methyl-.....	75-86-5....	P069
		...	
Methyl methacrylate.....	2-Propenoic acid, 2-methyl-, methyl ester.....	80-62-6....	U162
		...	
Methyl methanesulfonate.....	Methanesulfonic acid, methyl ester.....	66-27-3....	
		...	
Methyl parathion.....	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.....	298-00-0...	P071
		
Methylthiouracil.....	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-.....	56-04-2....	U164
		...	
Mitomycin C.....	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[aminocarbonyloxy)methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha,8beta,8aalpha,8balph)]-.....	50-07-7....	U010
		...	
MNNG.....	Guanidine, N-methyl-N'-nitro-N-nitroso-.....	70-25-7....	U163
		...	
Mustard gas.....	Ethane, 1,1'-thiobis[2-chloro-.....	505-60-2...	
		
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		...	
1,4-Naphthoquinone.....	1,4-Naphthalenedione.....	130-15-4...	
		
alpha-Naphthylamine.....	1-Naphthalenamine.....	134-32-7...	U167
		
beta-Naphthylamine.....	2-Naphthalenamine.....	91-59-8....	U168
		...	
alpha-Naphthylthiourea.....	Thiourea, 1-naphthalenyl-.....	86-88-4....	P072
		...	
Nickel.....	Same.....	7440-02-0..	
		
Nickel compounds, N.O.S. ¹.....	.....	.....
Nickel carbonyl.....	Nickel carbonyl Ni(CO) ₄ , (T-4)-.....	13463-39-3.	P073
		

Nickel cyanide.....	Nickel cyanide Ni(CN) ₂	557-19-7...	P074
Nicotine.....	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-.....	54-11-5.... ...	P075
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Nitric oxide.....	Nitrogen oxide NO.....	10102-43-9.	P076
p-Nitroaniline.....	Benzenamine, 4-nitro-.....	100-01-6...	P077
Nitrobenzene.....	Benzene, nitro-.....	98-95-3.... ...	U169
Nitrogen dioxide.....	Nitrogen oxide NO ₂	10102-44-0.	P078
Nitrogen mustard.....	Ethanamine, 2-chloro-N-(2-chloroethyl)-N- methyl-.....	51-75-2.... ...	
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Nitrogen mustard N-oxide.....	Ethanamine, 2-chloro-N-(2-chloroethyl)-N- methyl-, N-oxide.....	126-85-2...	
Nitrogen mustard, N-oxide, hydro- chloride salt.....	.....	.....
Nitroglycerin.....	1,2,3-Propanetriol, trinitrate.....	55-63-0.... ...	P081
p-Nitrophenol.....	Phenol, 4-nitro-.....	100-02-7...	U170
2-Nitropropane.....	Propane, 2-nitro-.....	79-46-9.... ...	U171
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N-Nitrosodi-n-butylamine.....	1-Butanamine, N-butyl-N-nitroso-.....	924-16-3...	U172
N-Nitrosodiethanolamine.....	Ethanol, 2,2'-(nitrosoimino)bis-.....	1116-54-7..	U173
N-Nitrosodiethylamine.....	Ethanamine, N-ethyl-N-nitroso-.....	55-18-5.... ...	U174
N-Nitrosodimethylamine.....	Methanamine, N-methyl-N-nitroso-.....	62-75-9.... ...	P082
N-Nitroso-N-ethylurea.....	Urea, N-ethyl-N-nitroso-.....	759-73-9...	U176
N-Nitrosomethylethylamine.....	Ethanamine, N-methyl-N-nitroso-.....	10595-95-6.	
N-Nitroso-N-methylurea.....	Urea, N-methyl-N-nitroso-.....	684-93-5...	U177
N-Nitroso-N-methylurethane.....	Carbamic acid, methylnitroso-, ethyl ester.....	615-53-2...	U178

N-Nitrosomethylvinylamine.....	Vinylamine, N-methyl-N-nitroso-.....	4549-40-0..	P084
		
N-Nitrosomorpholine.....	Morpholine, 4-nitroso-.....	59-89-2....	
		...	
N-Nitrosornicotine.....	Pyridine, 3-(1-nitroso-2-pyrrolidinyl)-, (S)-.....	16543-55-8.	
		
N-Nitrosopiperidine.....	Piperidine, 1-nitroso-.....	100-75-4...	U179
		
N-Nitrosopyrrolidine.....	Pyrrolidine, 1-nitroso-.....	930-55-2...	U180
		
N-Nitrososarcosine.....	Glycine, N-methyl-N-nitroso-.....	13256-22-9.	
		
5-Nitro-o-toluidine.....	Benzenamine, 2-methyl-5-nitro-.....	99-55-8....	U181
		...	
Octamethylpyrophosphoramidate.....	Diphosphoramidate, octamethyl-.....	152-16-9...	P085
		
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Paraldehyde.....	1,3,5-Trioxane, 2,4,6-trimethyl-.....	123-63-7...	U182
		
Parathion.....	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.....	56-38-2....	P089
		...	
Pentachlorobenzene.....	Benzene, pentachloro-.....	608-93-5...	U183
		
Pentachlorodibenzo-p-dioxins.....	
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Pentachloroethane.....	Ethane, pentachloro-.....	76-01-7....	U184
		...	
Pentachloronitrobenzene (PCNB).....	Benzene, pentachloronitro-.....	82-68-8....	U185
		...	
Pentachlorophenol.....	Phenol, pentachloro-.....	87-86-5....	See F027
		...	
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		...	
Phenol.....	Same.....	108-95-2...	U188
		
Phenylenediamine.....	Benzenediamine.....	25265-76-3.	
		
Phenylmercury acetate.....	Mercury, (acetato-O)phenyl-.....	62-38-4....	P092
		...	
Phenylthiourea.....	Thiourea, phenyl-.....	103-85-5...	P093
		
Phosgene.....	Carbonic dichloride.....	75-44-5....	P095
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Phorate.....	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester.....	298-02-2...	P094
Phthalic acid esters, N.O.S. ¹.....	.....	.....
Phthalic anhydride.....	1,3-Isobenzofurandione.....	85-44-9... ...	U190
2-Picoline.....	Pyridine, 2-methyl-.....	109-06-8...	U191
Polychlorinated biphenyls, N.O.S. ¹	
Potassium cyanide.....	Potassium cyanide K(CN).....	151-50-8...	P098
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Pronamide.....	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-.....	23950-58-5.	U192
1,3-Propane sultone.....	1,2-Oxathiolane, 2,2-dioxide.....	1120-71-4..	U193
n-Propylamine.....	1-Propanamine.....	107-10-8...	U194
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Propylthiouracil.....	4(1H)-Pyrimidinone, 2,3-dihydro-6-propyl-2-thioxo-.....	51-52-5... ...	
Pyridine.....	Same.....	110-86-1...	U196
Reserpine.....	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-smethyl ester, (3beta,16beta,17alpha,18beta,20alpha)-.....	50-55-5... ...	U200
Resorcinol.....	1,3-Benzenediol.....	108-46-3...	U201
Saccharin.....	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide.....	81-07-2... ...	U202
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Safrole.....	1,3-Benzodioxole, 5-(2-propenyl)-.....	94-59-7... ...	U203
Selenium.....	Same.....	7782-49-2..	
Selenium compounds, N.O.S. ¹	
Selenium dioxide.....	Selenious acid.....	7783-00-8..	U204

Selenium sulfide.....	Selenium sulfide SeS ₂	7488-56-4..	U205
		
Selenourea.....	Same.....	630-10-4...	P103
		
Silver.....	Same.....	7440-22-4..	
		
Silver compounds, N.O.S. ¹.....	.....	.....
Silver cyanide.....	Silver cyanide Ag(CN).....	506-64-9...	P104
		
Silvex (2,4,5-TP).....	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1....	See F027
		...	
Sodium cyanide.....	Sodium cyanide Na(CN).....	143-33-9...	P106
		
Streptozotocin.....	D-Glucose, 2-deoxy-2- [[[(methylnitrosoamino)carbonyl]amino]-	18883-66-4.	U206
		
Strontium sulfide.....	Strontium sulfide SrS.....	1314-96-1..	P107
		
Strychnine.....	Strychnidin-10-one.....	57-24-9....	P108
		...	
Strychnine salts.....	.....	.....	P108
TCDD.....	Dibenzo[b,e] [1,4]dioxin, 2,3,7,8- tetrachloro-.....	1746-01-6..	
		
1,2,4,5-Tetrachlorobenzene.....	Benzene, 1,2,4,5-tetrachloro-.....	95-94-3....	U207
		...	
Tetrachlorodibenzo-p-dioxins.....	.....	.....
Tetrachlorodibenzofurans.....	.....	.....
Tetrachloroethane, N.O.S. ¹	Ethane, tetrachloro-, N.O.S.....	25322-20-7.	
		
1,1,1,2-Tetrachloroethane.....	Ethane, 1,1,1,2-tetrachloro-.....	630-20-6...	U208
		
1,1,2,2-Tetrachloroethane.....	Ethane, 1,1,2,2-tetrachloro-.....	79-34-5....	U209
		...	
Tetrachloroethylene.....	Ethene, tetrachloro-.....	127-18-4...	U210
		
2,3,4,6-Tetrachlorophenol.....	Phenol, 2,3,4,6-tetrachloro-.....	58-90-2....	See F027
		...	
Tetraethyldithiopyrophosphate.....	Thiodiphosphoric acid, tetraethyl ester.....	3689-24-5..	P109
		
Tetraethyl lead.....	Plumbane, tetraethyl-.....	78-00-2....	P110
		...	
Tetraethyl pyrophosphate.....	Diphosphoric acid, tetraethyl ester.....	107-49-3...	P111
		
Tetranitromethane.....	Methane, tetranitro-.....	509-14-8...	P112
		

Thallium.....	Same.....	7440-28-0..	
		
Thallium compounds, N.O.S. ¹.....	.....	.....
Thallic oxide.....	Thallium oxide Tl ₂ O ₃	1314-32-5..	P113
		
Thallium(I) acetate.....	Acetic acid, thallium(1+) salt.....	563-68-8...	U214
		
Thallium(I) carbonate.....	Carbonic acid, dithallium(1+) salt.....	6533-73-9..	U215
		
Thallium(I) chloride.....	Thallium chloride TlCl.....	7791-12-0..	U216
		
Thallium(I) nitrate.....	Nitric acid, thallium(1+) salt.....	10102-45-1.	U217
		
Thallium selenite.....	Selenious acid, dithallium(1+) salt.....	12039-52-0.	P114
		
Thallium(I) sulfate.....	Sulfuric acid, dithallium(1+) salt.....	7446-18-6..	P115
		
Thioacetamide.....	Ethanethioamide.....	62-55-5....	U218
		...	
Thiofanox.....	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime.....	39196-18-4.	P045
		
Thiomethanol.....	Methanethiol.....	74-93-1....	U153
		...	
Thiophenol.....	Benzenethiol.....	108-98-5...	P014
		
Thiosemicarbazide.....	Hydrazinecarbothioamide.....	79-19-6....	P116
		...	
Thiourea.....	Same.....	62-56-6....	U219
		...	
Thiram.....	Thioperoxydicarbonic diamide [(H ₂ N)C(S)] ₂ S ₂ , tetramethyl-.....	137-26-8...	U244
		
Toluene.....	Benzene, methyl-.....	108-88-3...	U220
		
Toluenediamine.....	Benzenediamine, ar-methyl-.....	25376-45-8.	U221
		
Toluene-2,4-diamine.....	1,3-Benzenediamine, 4-methyl-.....	95-80-7....	
		...	
Toluene-2,6-diamine.....	1,3-Benzenediamine, 2-methyl-.....	823-40-5...	
		
Toluene-3,4-diamine.....	1,2-Benzenediamine, 4-methyl-.....	496-72-0...	
		
Toluene diisocyanate.....	Benzene, 1,3-diisocyanatomethyl-.....	26471-62-5.	U223
		
o-Toluidine.....	Benzenamine, 2-methyl-.....	95-53-4....	U328
		...	

o-Toluidine hydrochloride.....	Benzenamine, 2-methyl-, hydrochloride.....	636-21-5...	U222
p-Toluidine.....	Benzenamine, 4-methyl-.....	106-49-0...	U353
Toxaphene.....	Same.....	8001-35-2..	P123
1,2,4-Trichlorobenzene.....	Benzene, 1,2,4-trichloro-.....	120-82-1...	
1,1,2-Trichloroethane.....	Ethane, 1,1,2-trichloro-.....	79-00-5.... ...	U227
Trichloroethylene.....	Ethene, trichloro-.....	79-01-6.... ...	U228
Trichloromethanethiol.....	Methanethiol, trichloro-.....	75-70-7.... ...	P118
Trichloromonofluoromethane.....	Methane, trichlorofluoro-.....	75-69-4.... ...	U121
2,4,5-Trichlorophenol.....	Phenol, 2,4,5-trichloro-.....	95-95-4.... ...	See F027
2,4,6-Trichlorophenol.....	Phenol, 2,4,6-trichloro-.....	88-06-2.... ...	See F027
2,4,5-T.....	Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5.... ...	See F027
Trichloropropane, N.O.S. ¹.....	.....	25735-29-9.	
1,2,3-Trichloropropane.....	Propane, 1,2,3-trichloro-.....	96-18-4.... ...	
0,0,0-Triethyl phosphorothioate.....	Phosphorothioic acid, 0,0,0-triethyl ester.....	126-68-1...	
1,3,5-Trinitrobenzene.....	Benzene, 1,3,5-trinitro-.....	99-35-4.... ...	U234
Tris(1-aziridinyl)phosphine sulfide.....	Aziridine, 1,1',1''-phosphinothioylidynetris-.....	52-24-4.... ...	
Tris(2,3-dibromopropyl) phosphate.....	1-Propanol, 2,3-dibromo-, phosphate (3:1).....	126-72-7...	U235
Trypan blue.....	1,2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl [1,1'-biphenyl]-4,4'-diyl)bis(azo)]-bis[5-amino-4-hydroxy-, tetrasodium salt.....	72-57-1.... ...	U236
Uracil mustard.....	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-.....	66-75-1.... ...	U237
Vanadium pentoxide.....	Vanadium oxide V2O5.....	1314-62-1..	P120
Vinyl chloride.....	Ethene, chloro-.....	75-01-4.... ...	U043
Warfarin.....	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations less than 0.3%.....	81-81-2.... ...	U248

Warfarin.....	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%.....	81-81-2.... ...	P001
Warfarin salts, when present at concentrations less than 0.3%.....	.....	.....	U248
Warfarin salts, when present at concentrations greater than 0.3%.....	.....	.....	P001
Zinc cyanide.....	Zinc cyanide Zn(CN)2.....	557-21-1...	P121
Zinc phosphide.....	Zinc phosphide Zn3P2, when present at concentrations greater than 10%.....	1314-84-7..	P122
Zinc phosphide.....	Zinc phosphide Zn3P2, when present at concentrations of 10% or less.....	1314-84-7..	U249

¹ The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

APPENDIX V - METHOD OF ANALYSIS FOR CHLORINATED DIBENZO-P-DIOXINS AND - DIBENZOFURANS ^{1, 2, 3, 4}

Method 8280

1. Scope and Application

1.1 This method measures the concentration of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans in chemical wastes including still bottoms, filter aids, sludges, spent carbon, and reactor residues and in soils.

1.2 The sensitivity of this method is dependent upon the level of interferences.

1.3 This method is recommended for use only by analysts experienced with residue analysis and skilled in mass spectral analytical techniques.

1.4 Because of the extreme toxicity of these compounds, the analyst shall take necessary precautions to prevent exposure to the analyst, or to others, of materials known or believed to contain CDDs or CDFs.

2. Summary of the Method

2.1 This method is an analytical extraction cleanup procedure, and capillary column gas chromatograph-low resolution mass spectrometry method, using capillary column GC/MS conditions and internal standard techniques, which allow for the measurement of PCDDs and PCDFs in the extract.

2.2 If interferences are encountered, the method provides selected general purpose cleanup procedures to aid the analyst in their elimination.

3. Interferences

3.1 Solvents, reagents, glassware, and other sample processing hardware may yield discrete artifacts and elevated baselines, or both, causing misinterpretation of gas chromatograms. All of these materials shall be demonstrated to be free from interferences under the conditions of the analysis by running method blanks. Specific selection of reagents and purification of solvents by distillation in all-glass systems may be required.

3.2 Interferences co-extracted from the samples will vary considerably from source to source, depending upon the diversity of the industry being sampled. PCDD is often associated with other interfering chlorinated compounds such as PCBs which may be at concentrations several orders of magnitude higher than that of PCDD. While general cleanup techniques are provided as part of this method, unique samples may require additional cleanup approaches to achieve the sensitivity stated in Table 1.

Table 1-Gas Chromatography of TCDD

Column	Retention time (min.)	Detection limit ($\mu\text{g}/\text{kg}$) ¹
Glass capillary	9.5	0.003

¹ Detection limit for liquid samples is 0.003 $\mu\text{g}/\text{l}$. This is calculated from the minimum detectable GC response being equal to 5 times the GC background noise assuming a 1 ml effective final volume of the 1 liter sample extract, and a GC injection of 5 microliters. Detection levels apply to both electron capture and GC/MS detection. For further details see 44 FR 69526, December 3, 1979.

3.3 The other isomers of tetrachlorodibenzo-p-dioxin may interfere with the measurement of 2,3,7,8-TCDD. Capillary column gas chromatography is required to resolve those isomers that yield virtually identical mass fragmentation patterns.

4. Apparatus and Materials

4.1. Sampling equipment for discrete or composite sampling.

4.1.1 Grab sample bottle-amber glass, 1-liter or 1-quart volume. French or Boston Round design is recommended. The container shall be washed and solvent rinsed before use to minimize interferences.

4.1.2. Bottle caps-threaded to screw on to the sample bottles. Caps shall be lined with Teflon. Solvent washed foil, used with the shiny side towards the sample, may be substituted for the Teflon if sample is not corrosive.

4.1.3. Compositing equipment-automatic or manual compositing system. No tygon or rubber tubing may be used, and the system shall incorporate glass sample containers for the collection of a minimum of 250 ml. Sample containers must be kept refrigerated after sampling.

4.2 Water bath-heated, with concentric ring cover, capable of temperature control, $\pm 2^\circ\text{C}$. The bath should be used in a hood.

4.3 Gas chromatograph/mass spectrometer data system.

4.3.1 Gas chromatograph: An analytical system with a temperature-programmable gas chromatograph and all required accessories including syringes, analytical columns and gases.

4.3.2 Column: SP-2250 coated on a 30 m long X 0.25 mm I.D. glass column, Supelco No. 2-3714 or equivalent. Glass capillary column conditions: Helium carrier gas at 30 cm/sec linear velocity run splitless. Column temperature is 210 $^\circ$ C.

4.3.3 Mass spectrometer: Capable of scanning from 35 to 450 amu every 1 sec or less, utilizing 70 volts, nominal, electron energy in the electron impact ionization mode and producing a mass spectrum which

meets all the criteria in Table 2 when 50 ng of decafluorotriphenyl-phosphine (DFTPP) is injected through the GC inlet. The system shall also be capable of selected ion monitoring (SIM) for at least 4 ions simultaneously, with a cycle time of 1 sec or less. Minimum integration time for SIM is 100 ms. Selected ion monitoring is verified by injecting .015 ng of TCDD Cl³⁷ to give a minimum signal to noise ratio of 5 to 1 at mass 328.

TABLE 2

DFTPP Key Ions and Ion Abundance Criteria ¹

Mass	Ion abundance criteria
51	30-60% of mass 198.
68	Less than 2% of mass 69.
70	Less than 2% of mass 69.
127	40-60% of mass 198.
197	Less than 1% of mass 198.
198	Base peak, 100% relative abundance.
199	5-9% of mass 198.
275	10-30% of mass 198.
365	Greater than 1% of mass 198.
441	Present but less than mass 443.
442	Greater than 40% of mass 198.
443	17-23% of mass 442.

¹ J. W. Eichelberger, L.E. Harris, and W.L. Budde. 1975. Reference compound to calibrate ion abundance measurement in gas chromatography-mass spectrometry. *Analytical Chemistry* 47:995.

4.3.4 GC/MS interface: Any GC-to-MS interface that gives acceptable calibration points at 50 ng per injection for each compound of interest and achieves acceptable tuning performance criteria (see Sections 6.1 to 6.3) may be used. GC-to-MS interfaces constructed of all glass or glass-lined materials are recommended. Glass can be deactivated by silanizing with dichlorodimethylsilane. The interface must be capable of transporting at least 10 ng of the components of interest from the GC to the MS.

4.3.5 Data system: A computer system shall be interfaced to the mass spectrometer. The system shall allow the continuous acquisition and storage on machine-readable media of all mass spectra obtained throughout the duration of the chromatographic program. The computer shall have software that can search any GC/MS data file for ions of a specific mass and that can plot the ion abundances versus time or scan number. This type of plot is defined as an Extracted Ion Current Profile (EICP). Software shall also be able to integrate the abundance, in any EICP, between specified time or scan number limits.

4.4 Pipettes-Disposable, Pasteur, 150 mm long X 5 mm ID (Fisher Scientific Co., No. 13-678-6A or equivalent).

4.5 Flint glass bottle (Teflon-lined screw cap).

4.6 Reacti-vial (silanized) (Pierce Chemical Co.).

5. Reagents

5.1 Potassium hydroxide-(ACS), 2% in distilled water.

5.2 Sulfuric acid-(ACS), concentrated.

5.3 Methylene chloride, hexane, benzene, petroleum ether, methanol, tetradecane-pesticide quality or equivalent.

5.4 Prepare stock standard solutions of TCDD and ³⁷Cl-TCDD (molecular weight 328) in a glove box. The stock solutions are stored in a glovebox, and checked frequently for signs of degradation or evaporation, especially just prior to the preparation of working standards.

5.5 Alumina-basic, Woelm; 80/200 mesh. Before use activate overnight at 600°C, cool to room temperature in a dessicator.

5.6 Prepurified nitrogen gas

6.0 Calibration

6.1 Before using any cleanup procedure, the analyst shall process a series of calibration standards through the procedure to validate elution patterns and the absence of interferences from reagents.

6.2 Prepare GC/MS calibration standards for the internal standard technique that will allow for measurement of relative response factors of at least 3 CDD/³⁷CDD ratios. Thus, for TCDDs, at least 3 TCDD/³⁷Cl-TCDD and TCDF/³⁷Cl-TCDF shall be determined.⁵ The ³⁷Cl-TCDD/F concentration in the standard shall be fixed and selected to yield a reproducible response at the most sensitive setting of the mass spectrometer. Response factors for PCDD and HxCDD may be determined by measuring the response of the tetrachloro-labelled compounds relative to that of the unlabelled 1,2,3,4- or 2,3,7,8-TCDD, 1,2,3,4,7-PCDD or 1,2,3,4,7,8-HxCDD, which are commercially available.⁶

6.3 Assemble the necessary GC/MS apparatus and establish operating parameters equivalent to those indicated in Section 11.1 of this method. Calibrate the GC/MS system according to Eichelberger, et al. (1975) by the use of decafluorotriphenyl phosphine (DFTPP). By injecting calibration standards, establish the response factors for CDDs vs. ³⁷Cl-TCDD, and for CDFs vs. ³⁷Cl-TCDF. The detection limit provided in Table 1 should be verified by injecting .015 ng of ³⁷Cl-TCDD which shall give a minimum signal to noise ratio of 5 to 1 at mass 328.

7. Quality Control

7.1 Before processing any samples, the analyst shall demonstrate through the analysis of a distilled water method blank, that all glassware and reagents are interference-free. Each time a set of samples is extracted, or there is a change in reagents, a method blank shall be processed as a safeguard against laboratory contamination.

7.2 Standard quality assurance practices shall be used with this method. Field replicates shall be collected to measure the precision of the sampling technique. Laboratory replicates shall be analyzed to establish the precision of the analysis. Fortified samples shall be analyzed to establish the accuracy of the analysis.

8. Sample Collection, Preservation, and Handling

8.1 Grab and composite samples shall be collected in glass containers. Conventional sampling practices should be followed, except that the bottle shall not be prewashed with sample before collection. Composite samples shall be collected in glass containers in accordance with the requirements of the RCRA program. Sampling equipment shall be free of tygon and other potential sources of contamination.

8.2 The samples shall be iced or refrigerated from the time of collection until extraction. Chemical preservatives shall not be used in the field unless more than 24 hours will elapse before delivery to the

laboratory. If an aqueous sample is taken and the sample will not be extracted within 48 hours of collection, the sample shall be adjusted to a pH range of 6.0-8.0 with sodium hydroxide or sulfuric acid.

8.3 All samples shall be extracted within 7 days and completely analyzed within 30 days of collection.

9. Extraction and Cleanup Procedures

9.1 Use an aliquot of 1-10 g sample of the chemical waste or soil to be analyzed. Soils shall be dried using a stream of prepurified nitrogen and pulverized in a ball-mill or similar device. Perform this operation in a clear area with proper hood space. Transfer the sample to a tared 125 ml flint glass bottle (Teflon-lined screw cap) and determine the weight of the sample. Add an appropriate quantity of ³⁷Cl-labelled 2,3,7,8-TCDD (adjust the quantity according to the required minimum detectable concentration), which is employed as an internal standard.

9.2 Extraction

9.2.1 Extract chemical waste samples by adding 10 ml methanol, 40 ml petroleum ether, 50 ml doubly distilled water, and then shaking the mixture for 2 minutes. Tars shall be completely dissolved in any of the recommended neat solvents. Activated carbon samples shall be extracted with benzene using method 3540 in SW-846 (Test Methods for Evaluating Solid Waste-Physical/Chemical Methods, available from G.P.O. Stock B055-022-81001-2). Quantitatively transfer the organic extract or dissolved sample to a clean 250 ml flint glass bottle (Teflon lined screw cap), add 50 ml doubly distilled water and shake for 2 minutes. Discard the aqueous layer and proceed with Step 9.3.

9.2.2 Extract soil samples by adding 40 ml of petroleum ether to the sample, and then shaking for 20 minutes. Quantitatively transfer the organic extract to a clean 250 ml flint glass bottle (Teflon-lined screw cap), add 50 ml doubly distilled water and shake for 2 minutes. Discard the aqueous layer and proceed with Step 9.3.

9.3 Wash the organic layer with 50 ml of 20% aqueous potassium hydroxide by shaking for 10 minutes and then remove and discard the aqueous layer.

9.4 Wash the organic layer with 50 ml of doubly distilled water by shaking for 2 minutes, and discard the aqueous layer.

9.5 Cautiously add 50 ml concentrated sulfuric acid and shake for 10 minutes. Allow the mixture to stand until layers separate (approximately 10 minutes), and remove and discard the acid layer. Repeat acid washing until no color is visible in the acid layer.

9.6 Add 50 ml of doubly distilled water to the organic extract and shake for 2 minutes. Remove and discard the aqueous layer and dry the organic layer by adding 10g of anhydrous sodium sulfate.

9.7 Concentrate the extract to incipient dryness by heating in a 55° C water bath and simultaneously flowing a stream of prepurified nitrogen over the extract. Quantitatively transfer the residue to an alumina microcolumn fabricated as follows:

9.7.1 Cut off the top section of a 10 ml disposable Pyrex pipette at the 4.0 ml mark and insert a plug of silanized glass wool into the tip of the lower portion of the pipette.

9.7.2 Add 2.8g of Woelm basic alumina (previously activated at 600° C overnight and then cooled to room temperature in a desiccator just prior to use).

9.7.3 Transfer sample extract with a small volume of methylene chloride.

9.8 Elute the microcolumn with 10 ml of 3% methylene chloride-in-hexane followed by 15 ml of 20% methylene chloride-in-hexane and discard these effluents. Elute the column with 15 ml of 50% methylene chloride-in-hexane and concentrate this effluent (55° C water bath, stream of prepurified nitrogen) to about 0.3-0.5 ml.

9.9 Quantitatively transfer the residue (using methylene chloride to rinse the container) to a silanized Reacti-Vial (Pierce Chemical Co.). Evaporate, using a stream of prepurified nitrogen, almost to dryness, rinse the walls of the vessel with approximately 0.5 ml methylene chloride, evaporate just to dryness, and tightly cap the vial. Store the vial at 5° C until analysis, at which time the sample is reconstituted by the addition of tridecane.

9.10 Approximately 1 hour before GC-MS (HRGC-LRMS) analysis, dilute the residue in the micro-reaction vessel with an appropriate quantity of tridecane. Gently swirl the tridecane on the lower portion of the vessel to ensure dissolution of the CDDs and CDFs. Analyze a sample by GC/EC to provide insight into the complexity of the problem, and to determine the manner in which the mass spectrometer should be used. Inject an appropriate aliquot of the sample into the GC-MS instrument, using a syringe.

9.11 If, upon preliminary GC-MS analysis, the sample appears to contain interfering substances which obscure the analyses for CDDs and CDFs, high performance liquid chromatographic (HPLC) cleanup of the extract is accomplished, prior to further GC-MS analysis.

10. HPLC Cleanup Procedure⁷

10.1 Place approximately 2 ml of hexane in a 50 ml flint glass sample bottle fitted with a Teflon-lined cap.

10.2 At the appropriate retention time, position sample bottle to collect the required fraction.

10.3 Add 2 ml of 5% (w/v) sodium carbonate to the sample fraction collected and shake for one minute.

10.4 Quantitatively remove the hexane layer (top layer) and transfer to a micro-reaction vessel.

10.5 Concentrate the fraction to dryness and retain for further analysis.

11. GC/MS Analysis

11.1 The following column conditions are recommended: Glass capillary column conditions: SP-2250 coated on a 30 m long x 0.25 mm I.D. glass column (Supelco No. 2-3714, or equivalent) with helium carrier gas at 30 cm/sec linear velocity, run splitless. Column temperature is 210° C. Under these conditions the retention time for TCDDs is about 9.5 minutes. Calibrate the system daily with, a minimum, 3 injections of standard mixtures.

11.2 Calculate response factors for standards relative to 37Cl-TCDD/F (see Section 12).

11.3 Analyze samples with selected ion monitoring of at least 2 ions from Table 3. Proof of the presence of CDD or CDF exists if the following conditions are met:

11.3.1 The retention time of the peak in the sample shall match that in the standard, within the performance specifications of the analytical system.

11.3.2 The ratio of ions shall agree within 10% with that of the standard.

11.3.3 The retention time of the peak maximum for the ions of interest shall exactly match that of the peak.

Table 3

List of Accurate Masses Monitored Using GC Selected-Ion Monitoring, Low Resolution, Mass Spectrometry for Simultaneous Determination of Tetra-, Penta- and Hexachlorinated Dibenzo-p-Dioxins and Dibenzofurans

Class of chlorinated dibenzodioxin or dibenzofuran	Number of chlorine substituents (x)	Monitored m/z for dibenzodioxins C ₁₂ H _{8-x} O ₂ Cl _x	Monitored m/z for dibenzofurans C ₁₂ H _{8-x} OCl _x	Approximate theoretical ratio expected on basis of isotopic abundance
Tetra	4	¹ 319.897	¹ 303.902	0.74
.....	.....	321.894	305.903	1.00
.....	.....	¹ 327.885	² 311.894 .....	.....
.....	.....	¹ 256.933 .....	.....	0.21
.....	.....	³ 258.930 .....	.....	0.20
Penta	5	¹ 353.858	¹ 337.863	0.57
.....	.....	355.855	339.860	1.00
Hexa	6	389.816	373.821	1.00
.....	.....	391.813	375.818	0.87

¹ Molecular ion peak.

² Cl₂-labelled standard peaks.

³ Ions which can be monitored in TCDD analyses for confirmation purposes.

11.4 Quantitate the CDD and CDF peaks from the response relative to the 37Cl-TCDD/F internal standards. Recovery of the internal standard should be greater than 50%.

11.5 If a response is obtained for the appropriate set of ions, but is outside the expected ratio, a co-eluting impurity may be suspected. In this case, another set of ions characteristic of the CDD/CDF molecules shall be analyzed. For TCDD a good choice of ions is m/e 257 and m/e 259. For TCDF a good choice of ions is m/e 241 and 243. These ions are useful in characterizing the molecular structure to TCDD or TCDF. For analysis of TCDD good analytical technique would require using all 4 ions, m/e 257, 320, 322, and 328, to verify detection and signal to noise ratio of 5 to 1. Suspected impurities such as DDE, DDD or PCB residues can be confirmed by checking for their major fragments. These materials can be removed by the cleanup columns. Failure to meet criteria shall be explained in the report, or the sample reanalyzed.

11.6 If broad background interference restricts the sensitivity of the GC/MS analysis, the analyst shall employ cleanup procedures and reanalyze by GC/MS. See section 10.0.

11.7 In those circumstances where these procedures do not yield a definitive conclusion, the use of high resolution mass spectrometry is suggested.

12. Calculations

12.1 Determine the concentration of individual compounds according to the formula:

$$\text{Concentration, } \mu\text{g/gm} = \frac{A_x A_s}{G \times A_i \times R_f}$$

where:

A= μ g of internal standard added to the sample⁸

G=gm of sample extracted

As=area of characteristic ion of the compound being quantified.

Ais=area of characteristic ion of the internal standard

Rf=response factor⁹

Response factors are calculated using data obtained from the analysis of standards according to the formula:

$$Rf = \frac{A_s \times C_{is}}{A_{is} \times C_s}$$

where:

Cis=concentration of the internal standard

Cc=concentration of the standard compound

12.2 Report results in micrograms per gram without correction for recovery data. When duplicate and spiked samples are analyzed, all data obtained should be reported.

12.3 Accuracy and Precision. No data are available at this time.

¹ This method is appropriate for the analysis of tetra-, penta- and hexachlorinated dibenzo-p-dioxins and -dibenzofurans.

² Analytical protocol for determination of TCDDs in phenolic chemical wastes and soil samples obtained from the proximity of chemical dumps. T.O. Tiernan and M. Taylor, Brehm Laboratory, Wright State University, Dayton, OH 45435.

³ Analytical protocol for determination of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans in river water. T.O. Tiernan and M. Taylor. Brehm Laboratory, Wright State University, Dayton, OH 45435.

⁴ In general, the techniques that should be used to handle these materials are those which are followed for radioactive or infectious laboratory materials. Assistance in evaluating laboratory practices may be obtained from industrial hygienists and persons specializing in safe laboratory practices. Typical infectious waste incinerators are probably not satisfactory devices for disposal of materials highly contaminated with CDDs or CDFs. Safety instructions are outlined in EPA Test Method 613(4.0)

See also: (1) "Program for monitoring potential contamination in the laboratory following the handling and analyses of chlorinated dibenzo-p-dioxins and dibenzofurans" by F. D. Hileman et al., In: Human and Environmental Risks of Chlorinated Dioxins and Related Compounds, R.E. Tucker, et al, eds., Plenum

Publishing Corp., 1983.(2) Safety procedures outlined in EPA Method 613, Federal Register volume 44, No. 233, December 3, 1979.

⁵ ³⁷ Cl-labelled 2,3,7,8-TCDD and 2,3,7,8-TCDF are available from K.O.R. Isotopes, and Cambridge Isotopes, Inc., Cambridge, MA. Proper standardization requires the use of a specific labelled isomer for each congener to be determined. However, the only labelled isomers readily available are ³⁷Cl-2,3,7,8-TCDD and ³⁷Cl-2,3,7,8-TCDF. This method therefore uses these isomers as surrogates for the CDDs and the CDFs. When other labelled CDDs and CDFs are available, their use will be required.

⁶ This procedure is adopted because standards are not available for most of the CDDs and CDFs, and assumes that all the congeners will show the same response as the unlabelled congener used as a standard. Although this assumption may not be true in all cases, the error will be small.

⁷ For cleanup see also method #8320 or #8330, SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (1982).

⁸ The proper amount of standard to be used is determined from the calibrations curve (See section 6.0).

⁹ If standards for PCDDs/Fs and HxCDDs/Fs are not available, response factors for ions derived from these congeners are calculated relative to ³⁷Cl-TCDD/F. The analyst may use response factors for 1,2,3,4- or 2,3,7,8-TCDD, 1,2,3,4,7-PeCDD, or 1,2,3,4,7,8-HxCDD for quantitation of TCDDs/Fs, PeCDDs/Fs and HxCDDs/Fs, respectively. Implicit in this requirement is the assumption that the same response is obtained from PCDDs/Fs containing the same number of chlorine atoms.

NR 610 - SMALL QUANTITY GENERATOR STANDARDS

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NR 610.01 PURPOSE. The purpose of this chapter is to specify the requirements that apply to small quantity and very small quantity generators of hazardous waste.

Note: In order to comply with this chapter, small quantity generators will also need at a minimum copies of chs. NR.600, 605, 615, 630 and 675.

NR 610.02 APPLICABILITY. Except as otherwise provided, this chapter applies to small quantity generators and very small quantity generators of hazardous waste. Except as otherwise provided, this chapter does not apply to solid waste generators, that generate only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 610.03 DEFINITIONS. (1) The definitions in s. NR 600.03 apply to this chapter.

(2) In this chapter, "full regulation" means those regulations that are applicable to generators of greater than 1,000 kilograms (2,205 pounds) of non-acute hazardous waste in a calendar month.

NR 610.04 EXEMPTIONS. (1) WASTE LEAD ACID BATTERIES. A person who generates, transports or stores lead-acid batteries that are destined for off-site recycling is exempt from the requirements of this chapter if:

(a) The waste lead-acid batteries shall be managed to protect public health, safety, welfare and the environment.

(b) Handling techniques shall be used to prevent the waste lead-acid batteries from being damaged or broken.

(c) Any hazardous waste generated during the management of waste lead-acid batteries such as acid from any spills or discharges, lead plates or battery cases shall be sent to a facility which is approved to accept this waste.

(2) PESTICIDE CONTAINERS. Farmers who generate waste pesticide containers or inner liners of the containers which are hazardous waste are exempt from all hazardous waste regulatory requirements if the waste pesticides containers or inner liners of the containers are handled as specified in this subsection:

(a) The container or inner liner shall be triple rinsed using a solvent capable of removing the contents;
or

(b) The container or inner liner shall be cleaned by a method that has been shown in the scientific literature or by tests conducted by the generator to achieve results equivalent to those achieved by the method described in par. a.; or

(c) The inner liner that prevented contact of the contents with the container shall be removed and properly managed.

(3) RINSE WATER FROM PESTICIDE CONTAINERS. Liquid which is generated in the process of triple rinsing pesticide containers or liners is exempt from all hazardous waste regulations if:

(a) The rinse water shall be disposed of on the farm where it is generated in a manner consistent with the disposal instructions on the pesticide label and prescribed dosage.

(b) The rinse water shall be handled to protect public health, safety, welfare and the environment.

(4) OTHER EMPTY CONTAINERS. Any hazardous waste that is remaining in either an empty container or inner liner removed from an empty container is exempt from the requirements of this chapter if all the requirements of this section are complied with.

(a) A container or an inner liner removed from a container that has held any hazardous waste except a waste that is a compressed gas, listed as an acute hazardous waste in s. NR 605.09(2)(a), table II or (b), table III or identified in s. NR 605.09(3)(b), table IV is empty if all wastes that can be removed from the container have been removed and:

1. No more than 2.5 centimeters (one inch) of residue shall remain on the bottom of the container or inner liner; or

2. No more than 3% by weight of the total capacity of the container shall remain in the container or inner liner if the container is less than or equal to 110 gallons in size; or

3. No more than 0.3% by weight of the total capacity of the container shall remain in the container or inner liner if the container is greater than 110 gallons in size.

(b) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric pressure.

(c) A container or an inner liner removed from a container that has held an acute hazardous waste listed in s. NR 605.09(2)(a), table II or (b), table III or identified in s. NR 605.09(3)(b), table IV is empty if:

1. The container or inner liner has been triple rinsed using a solvent capable of removing the contents;
or

2. The container or inner liner shall be cleaned by a method that has been shown in the scientific literature or by tests conducted by the generator to achieve results equivalent to those achieved by the method described in subd. 1.; or

3. The inner liner, that prevented contact of the contents with the container, has been removed and properly managed as hazardous waste.

Note: Empty containers and the rinse water from cleaning or reconditioning empty containers are regulated as a solid waste under chs. NR 500 to 522. In addition, any rinse water from the cleaning or reconditioning of empty containers is subject to regulation as a hazardous waste if it exhibits any of the characteristics in s. NR 605.08.

NR 610.05 HAZARDOUS WASTE DETERMINATION. A person who generates a solid waste shall determine if that waste is a hazardous waste using the following procedure:

(1) The generator shall first determine if the solid waste is excluded from regulation under s. NR 605.05.

(2) The generator shall then determine if the solid waste is listed in s. NR 605.09. If the waste is identified in this section it is a listed hazardous waste.

(3) If the waste is not listed as a hazardous waste in s. NR 605.09, then the generator shall determine whether the waste is hazardous because it exhibits any of the characteristics identified in s. NR 605.08. This determination shall be made by either:

(a) Testing the waste according to the methods in s. NR 605.08; or

(b) Applying knowledge of the hazard characteristic of the solid waste taking into account the materials or the processes used.

(4) If the waste is determined to be a hazardous waste, the generator shall refer to chs. NR 600 to 685 for possible exclusions or restrictions pertaining to management of that specific waste.

(5) If a generator changes any processes in a way that could affect the characteristics of any solid waste produced, the generator shall again follow the hazardous waste determination procedures of this section.

(6) A generator shall keep records of any test results, waste analyses or other determinations made in accordance with the requirements of this section for at least 3 years from the date that the waste was last sent to an on-site or off-site storage, treatment or disposal facility. The period of retention may be extended beyond 3 years upon written notice from the department. The notice shall specify the records or types of records that are to be retained.

NR 610.06 DETERMINATION OF QUANTITY OF WASTE GENERATED. In determining the quantity of hazardous waste generated the generator may not count any of the following:

(1) Hazardous waste removed from on-site storage if it was counted at the time of generation.

(2) Hazardous waste produced by on-site treatment including reclamation, if that the hazardous waste receiving treatment was counted initially.

(3) Spent materials that are generated, reclaimed, and subsequently reused on-site, so long as spent materials have been counted once.

NR 610.07 VERY SMALL QUANTITY GENERATORS. (1) GENERAL. Except as provided in s. NR 610.09 which covers acute hazardous waste, any person who generates in a calendar month a total of less than 100 kilograms (220 pounds) of hazardous waste and does not accumulate at any time quantities of hazardous waste greater than 1000 kilograms (2,205 pounds) is exempt from full regulation if the following requirements are complied with:

(a) The very small quantity generator shall determine if its waste is a hazardous waste using the procedures in s. NR 610.05.

(b) The very small quantity generator shall treat, store, dispose or recycle the waste in an on-site facility which has been licensed or otherwise approved to accept the waste or is exempt from licensing under s. NR 630.04 which covers exemptions from the general standards for treatment, storage or disposal facilities; or

(c) The very small quantity generator shall ensure delivery of the waste to an off-site treatment, storage, disposal or recycling facility which meets the following requirements:

1. Facilities located outside of Wisconsin shall:

a. Be permitted by EPA under 40 CFR part 270; or

b. Have interim status under 40 CFR parts 265 and 270; or

c. Be permitted or approved by a state authorized by EPA under 42 USC 6926; or

d. Be permitted, licensed or registered by a state to manage municipal solid waste; or

e. Beneficially use, reuse, legitimately recycle or reclaim the waste; or

f. Treat the waste prior to beneficial use, reuse, legitimate recycling or reclamation.

2. Facilities located in Wisconsin shall:

a. Have been issued an operating license, interim license, variance or waiver, under ch. NR 680 which covers plan review and licensing, or

b. Be exempt from licensing under s. NR 630.04, or

c. Be a licensed solid waste disposal facility which has been approved by the department to accept hazardous wastes from very small quantity generators.

Note: The specific requirements for landfills accepting hazardous wastes from very small quantity generators is contained in s. NR 506.15.

(d) The very small quantity generator shall comply with the manifest requirements of s. NR 615.08, if the generator uses the manifest.

(e) The very small quantity generator shall comply with the notification requirements of s. NR 600.05, if the generator uses the manifest.

(2) MIXTURES. Very small quantity generators may mix their hazardous waste exempt from full regulation under sub. (1) with non-hazardous solid waste and remain exempt under sub. (1), even if the resultant mixture exceeds the 100 kilogram per month limit as long as the resultant mixture does not meet any of the characteristics of a hazardous waste contained in s. NR 605.08. A very small quantity generator mixing a hazardous waste exempt from full regulation under sub. (1) with a non-hazardous solid waste is exempt from the hazardous waste treatment requirements of chs. NR 600 to 685 if the mixture meets the requirements of this subsection.

Note: If any person mixes a hazardous waste not exempt from full regulation under sub. (1) with a solid waste the resultant mixture is subject to full regulation.

Note: If a very small generator mixes hazardous waste with used oil, the resultant mixture is subject to 40 CFR 266, Subpart E, if the resultant mixture is destined to be burned for energy recovery.

NR 610.08 SMALL QUANTITY GENERATORS. Any person who generates in a calendar month a total of 100 kilograms (220 pounds) but less than 1,000 kilograms (2,205 pounds) of hazardous waste and does not accumulate at any time quantities of hazardous waste greater than 6000 kilograms (13,230 pounds) and who accumulates hazardous waste on-site in containers or tanks without a storage license shall comply with all the requirements contained in sub. (1). Additional requirements applicable to small quantity generators are also contained in subs. (2) to (5).

(1) GENERAL REQUIREMENTS. The following requirements apply to all small quantity generators.

(a) Hazardous waste determination. Small quantity generators shall determine if their waste is a hazardous waste using the procedures in s. NR 610.05.

(b) Notification. Small quantity generators shall notify the department and EPA in accordance with the requirements of s. NR 600.05.

(c) Identification number. A small quantity generator may not treat, store, dispose, recycle, transport or offer for transportation hazardous waste without an identification number.

1. A generator who has not received an identification number shall obtain one by completing the notification form in accordance with s. NR 600.05.

2. A generator may not offer hazardous waste to transporters or to treatment, storage, disposal or recycling facilities that have not received an identification number.

(d) Manifest system. Small quantity generators shall comply with the manifest requirements specified in s. NR 615.08.

(e) Reporting. Small quantity generators shall complete an annual report on a form supplied by the department and submit it to the department by March 1st of the following year. The small quantity generator shall retain a copy of the annual report for at least 3 years from the due date of the report unless the department extends this period in writing. Any extension shall specify the type of information which shall be retained. The annual report shall cover generator activities for the previous calendar year and at a minimum contain the following information:

1. The identification number, name and address of the generator.

2. The name, address and identification number of each off-site hazardous waste treatment, storage or disposal facility where hazardous waste was shipped. If shipments are sent out of the United States, the report shall identify the name and address of the facility.

3. The name and identification number of each transporter used.

4. A description of each hazardous waste shipped off-site including the hazardous waste number, the DOT hazard class and the quantity.

5. A certification signed by the small quantity generator or authorized representative stating that: "I certify under the penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

(f) Exception reporting. 1. A small quantity generator who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 60 days of the date the waste was accepted by the initial transporter shall submit an exception report to the department which includes:

a. A legible copy of the manifest along with an indication that the generator has not received confirmation of delivery; and

b. A cover letter signed by the small quantity generator or an authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts.

2. Small quantity generators shall keep a copy of each exception report for a period of at least 3 years unless the department extends this period in writing. The information that a small quantity generator is required to retain for a period of more than 3 years will be specified by the department in its written notification of the extension.

(g) Additional reporting. The department may require small quantity generators to furnish additional reports concerning the quantity and disposition of wastes listed in ch. NR 605.

(h) Packaging. Before transporting or offering hazardous waste for transportation off-site, small quantity generators shall package the hazardous waste to be shipped in accordance with DOT regulations on packaging in 49 CFR Parts 173, 178 and 179, October 1, 1988.

(i) Labeling and marking. Before transporting hazardous waste or offering hazardous waste for transportation off-site, small quantity generators shall mark and label each package in accordance with applicable DOT regulations on hazardous materials in 49 CFR Part 172, October 1, 1988.

1. Before placing hazardous waste in an on-site storage area, the small quantity generator shall mark each container with the words "HAZARDOUS WASTE" or other words that identify the contents of the containers as hazardous waste.

2. Before transporting or offering hazardous waste for transportation off-site, a small quantity generator shall mark each container used to transport hazardous waste with the following words: "HAZARDOUS WASTE". State and federal law prohibits improper disposal. If found contact the nearest police department, the division of emergency government or the department of natural resources. Generator's name and address _____, Manifest document number _____." In addition to putting the manifest document number on the package the generator shall also put the state manifest document number

on the package, if the manifest has such a number. For the purpose of this section, "state manifest document number" means the document number printed on the manifest in item A by the state that provides the manifest.

(j) Placarding. Before transporting hazardous waste or offering hazardous waste for transportation off-site, a small quantity generator shall placard or offer the initial transporter the appropriate placards required by DOT regulations for hazardous materials in 49 CFR Part 172, Subpart F, October 1, 1988.

Note: The publications containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

(k) International shipments. When shipping hazardous waste outside the United States the small quantity generator shall comply with the requirements of s. NR 615.12.

(l) Accumulation periods. Small quantity generators that accumulate hazardous waste on-site in containers or tanks shall comply with the following requirements:

1. Within 180 days or less the accumulated waste shall be either:

a. Shipped off-site to a facility located outside of Wisconsin which is permitted by EPA or the authorized state, is exempt from permitting or has interim status under RCRA; or

b. Treated, stored, disposed of or recycled in an off-site facility which has been issued a final license, interim license, variance or waiver under ch. NR 680 or is exempt from licensing under s. NR 630.04; or

c. Treated, stored, disposed of or recycled in an on-site facility which has been licensed or otherwise approved to accept the waste or is exempt from licensing under s. NR 630.04.

2. In lieu of compliance with subd. 1., small quantity generators may accumulate hazardous waste on-site for up to 270 days if:

a. The waste is shipped to an off-site facility which meets the requirements specified in par. (l)1.a. or b.

b. The waste shall be transported 200 miles or more from the generation site.

c. Written documentation is maintained on why the selected off-site facility was chosen.

3. Extensions of up to 30 days to either of the accumulation periods listed above may be granted by the department in writing due to unforeseen, temporary and uncontrollable circumstances. The generator shall provide the department with a written request for an extension along with all the necessary supporting justification. The department may revoke this extension at any time if it is necessary to protect human health and the environment.

(m) Storage in containers. If the waste is placed in containers, the small quantity generator shall meet the following requirements:

1. Inspect areas where containers are stored as well as inspect all containers used for storing hazardous waste at least weekly for evidence of leakage, corrosion or deterioration. Spill containment structures such as dikes shall also be inspected weekly for deterioration.

2. Record the inspections in an inspection log. These records shall be kept for at least 3 years from the date of the inspection. These records shall include the date and time of inspection, the name of the inspector, a notation of the observations made such as the condition of the containers and the date and nature of any repairs or other remedial actions taken.

3. All containers shall be leak proof and in good overall condition.

4. If the container begins to leak, the contents shall be removed and placed in a leak proof container immediately. All spilled material shall be cleaned up and properly managed.

5. Containers holding hazardous waste shall be kept closed except when it is necessary to add or remove waste.

6. Containers holding hazardous waste may not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

7. Storage containers holding hazardous waste which is incompatible with any other waste or materials stored nearby shall be kept separated from them by means of a dike, berm, wall or other device.

8. The container shall be made or lined with materials which will not react with or be incompatible with the hazardous waste to be stored.

9. The date the current period of accumulation began shall be clearly marked and visible for inspection on each container.

10. Hazardous waste may not be placed in an unwashed container that previously held an incompatible waste or material unless the container has been properly cleaned so that placement of the waste or material in the container does not:

a. Generate extreme heat or pressure, fire or explosion or violent reaction;

b. Produce uncontrolled toxic mists, fumes, dusts or gasses in sufficient quantities to threaten human health or the environment;

c. Produce uncontrolled flammable fumes or gasses in sufficient quantities to pose a risk of fire or explosion;

d. Damage the structural integrity of the device or facility containing the waste; or

e. Through other like means threaten human health or the environment.

11. Incompatible wastes or incompatible wastes and materials may not be placed in the same container.

(n) Storage in tanks. If the waste is placed in tanks, the small quantity generator shall meet the following requirements:

1. The small quantity generator shall inspect all tanks used for accumulating hazardous waste at least weekly to ensure compliance with the criteria listed in this subdivision. The small quantity generator shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a

schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

a. Tank integrity shall be inspected to detect corrosion or leaking at fixtures or seams; and

b. Evidence of erosion or obvious signs of leakage, such as wet spots or dead vegetation in the immediate surrounding area of the tank and spill containment structures, such as dikes, shall be inspected.

2. The small quantity generator shall inspect all tanks used for the accumulation of hazardous waste at least once each operating day to ensure that discharge control equipment, such as waste feed cutoff systems, bypass systems and drainage systems are in good working order, to ensure that each tank is being operated according to its design by gathering data from monitoring equipment, such as pressure or temperature gauges and to ensure that the level of the waste in each uncovered tank complies with subd. 5.

3. The small quantity generator shall record the inspections in an inspection log. These records shall be kept for at least 3 years from the date of the inspection. At a minimum, these records shall include the date and time of inspection, the name of the inspector, a notation of the observations made such as the condition of each tank and the date and nature of any repairs or other remedial actions taken.

4. The small quantity generator shall ensure that tanks which contain volatile waste shall comply with all appropriate air management rules contained in chs. NR 400 to 499, regarding the control of organic compound emissions.

5. Uncovered tanks shall be operated to ensure at least 60 centimeters (2 feet) of freeboard unless the tank is equipped with a containment structure, a drainage control system or a diversion structure with a capacity that equals or exceeds the volume of the top 60 centimeters (2 feet) of the tank.

6. Hazardous waste or treatment reagents may not be placed in a tank if they could cause the tank or its inner liner to rupture, leak, corrode or otherwise fail before the end of its intended life.

7. Ignitable or reactive waste may not be placed in a tank unless:

a. The waste is treated, rendered or mixed before or immediately after placement in the tank so that the resulting waste, mixture or dissolution of material is no longer ignitable or reactive and the requirement of s. NR 630.17(2) shall be complied with; or

b. The waste is stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react; or

c. The tank is used solely for emergencies.

8. A small quantity generator who stores ignitable or reactive waste in covered tanks shall comply with the requirements of ch. Ind 8 for the maintenance of protective distances between the waste boundary and any public ways, streets, alleys or an adjoining property line that can be built upon.

9. Where hazardous waste is continuously fed into a tank, the tank shall be equipped with a means to stop this inflow, such as a waste feed cutoff system or a bypass system to a standby tank.

Note: Waste feed cutoff or bypass systems are intended to be used in the event of a leak or overflow from the tank due to a system failure, such as a malfunction in the treatment process or a crack in the tank.

10. Upon closure of the facility, the small quantity generator shall remove all hazardous waste from tank systems, discharge control equipment and discharge confinement structures.

11. Hazardous waste may not be placed in an unwashed tank which previously held an incompatible waste or material unless the tank has been properly cleaned so that placement of the hazardous waste does not:

a. Generate extreme heat or pressure, fire or explosion or violent reaction;

b. Produce uncontrolled toxic mists, fumes, dusts or gasses in sufficient quantities to threaten human health or the environment;

c. Produce uncontrolled flammable fumes or gasses in sufficient quantities to pose a risk of fire or explosion;

d. Damage the structural integrity of the device or facility containing the waste; or

e. Through other like means threaten human health or the environment.

12. Incompatible wastes or incompatible wastes and materials may not be placed in the same tank.

13. The date the current period of accumulation began shall be clearly marked and visible for inspection on each tank.

Note: If any solid waste is removed from the tank system, the generator shall determine whether the waste is a hazardous waste. If the waste is a hazardous waste, the generator shall manage it in accordance with all applicable requirements of chs. NR 600 to 685.

(o) Preparedness and prevention. The small quantity generator shall comply with s. NR 630.21 which covers preparedness and prevention procedures.

(p) Storage locations. The identity and location of all stored hazardous waste shall be known at all times by the small quantity generator.

(q) Storage to prevent discharge. The storage of hazardous waste shall be conducted in a manner so that no discharge of hazardous waste occurs.

(r) Potential for discharge. A small quantity generator shall comply with any of the requirements of chs. NR 600 to 685 as specified by the department if the department determines that there is a potential for discharge of the hazardous waste or hazardous constituents or determines that a discharge has occurred.

(s) Employee training. The small quantity generator shall ensure that all employees are properly trained and thoroughly familiar with proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies.

(t) Accumulation of 1000 kilograms or more. If the small quantity generator accumulates at least 1000 kilograms but not more than 6,000 kilograms of hazardous waste, the generator shall:

1. Maintain a written description of the training program as required in s. NR 630.16;

2. Ensure that all employees required to be trained take part in an annual review of the training; and

3. Maintain records that document that the training and annual review requirements have been given to and completed by all employees required to be trained.

(u) Emergency procedures. All small quantity generators shall comply with the following emergency procedure requirements:

1. At least one employee responsible for coordinating all emergency response measures shall at all times be on the premises or be able to reach the facility within a short period of time. This employee shall be the emergency coordinator.

2. The small quantity generator shall post the following information next to any telephone with an outside line that may be used when responding to an emergency:

a. The name and telephone number of the emergency coordinator or the procedures for contacting that person;

b. The location of the nearest fire extinguisher, spill control material and fire alarm; and

c. The telephone number of the fire department unless the facility has a direct alarm.

3. In the event of a discharge or spill of hazardous waste, a fire or explosion or an imminent threat that has the potential for damaging human health or the environment, the facilities emergency coordinator or designee shall:

a. Activate internal alarms or communication systems to notify all personnel of the imminent or actual emergency situation;

b. In the event of a fire, call the fire department and if appropriate attempt to extinguish the fire;

Note: Other agencies such as the department of industry, labor and human relations and occupational safety and health administration regulate requirements for fire fighting responses.

c. In the event of a discharge or spill, contain the flow of hazardous waste to the extent possible;

d. Telephone the division of emergency government and comply with the requirements of s. 144.76, Stats., ch. NR 158 and SARA Title III;

Note: The division of emergency government's 24-hour number is (608) 266-3232. Collect calls are accepted. In addition, 40 CFR 302 may require the small quantity generator to notify the national response center of certain releases.

e. Take all reasonable measures necessary to ensure that fires, explosions and discharges do not occur, reoccur or spread to other parts of the facility. Where applicable, these measures include stopping processes and operations, collection and containing discharged wastes and removing or isolating containers;

f. As soon as practical arrange for and complete cleanup of the hazardous waste and any contaminated materials or soils. The removal and subsequent containerization, transportation, treatment, storage or disposal of any hazardous waste shall be in accordance with the requirements of chs. NR 600 to 685.

4. In the event of a fire, explosion or other release which could threaten human health outside the facility or when the generator has knowledge that a spill has reached surface water, the generator shall immediately notify the national response center and submit a report which includes the following information:

a. The name, address and EPA identification number of the generator;

b. The date, time and type of incident;

c. The quantity and type of hazardous waste involved in the incident;

- d. The extent of injuries, if any; and
- e. The estimated quantity and disposition of recovered materials, if any.

Note: The national response center's toll free 24-hour phone number is (800) 424-8802.

(v) Land disposal restrictions. All small quantity generators shall comply with the requirements contained in ch. NR 675.

(2) **SATELLITE ACCUMULATION.** (a) Small quantity generators may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in s. NR 605.09(2)(a), table II or (b), table III, or identified in s. NR 605.09(3)(b), table IV in containers at or near any point of generation where wastes initially accumulate if:

1. An individual shall be designated to be in charge of the area.
2. All containers shall be leak proof and in good overall condition.
3. If the container begins to leak, the contents shall be removed and placed in a leak proof container immediately. All spilled material shall be cleaned up and properly managed.
4. Containers holding hazardous waste shall be kept closed except when it is necessary to add or remove waste.
5. Containers holding hazardous waste may not be opened, handled or stored in a manner which may rupture the container or cause it to leak.
6. The container shall be made or lined with materials which will not react with or be incompatible with the hazardous waste to be accumulated.
7. The generator shall mark all containers with the words "HAZARDOUS WASTE" and other words that identify the contents of the containers.
8. Once a container of hazardous waste reaches capacity, it shall be removed from the accumulation area immediately and be managed in accordance with the requirements of this section.
9. Any hazardous waste removed from a satellite accumulation area shall be managed in accordance with the requirements of this section.

(b) A small quantity generator who stores waste in a satellite accumulation area in accordance with this section shall be exempt from the accumulation periods specified in sub. (1)(l).

(3) **ACCUMULATION OF SPILLS OR LEAKS IN TANKS.** A small quantity generator may accumulate hazardous waste on-site in tanks used for containment of spills or leaks if the following requirements are met:

- (a) The tank shall be kept empty unless a spill or leak occurs.
- (b) The generator shall remove all hazardous wastes which accumulates in the tank as a result of a spill or leak within 24 hours or at the earliest practicable time if the owner or operator can demonstrate to the department that existing detection technologies or site conditions will not allow detection of a release within 24 hours; and

(c) The generator shall comply with all applicable tank requirements contained in sub. (1)(n).¹

(d) The generator shall manage any hazardous waste which is removed from the tank in accordance with the requirements of this section.

Note: A material that does not initially meet the definition of a hazardous waste can become a hazardous waste after it is spilled or leaked. This would be true if:

1. The spilled or leaked material will not be used without treatment, for its originally intended purpose; and

2. The material is a listed hazardous waste under s. NR 605.09 or exhibits any of the characteristics of a hazardous waste under s. NR 605.08.

(4) STABILIZATION WITH ABSORBENT MATERIAL. A small quantity generator who combines absorbent material with hazardous waste generated on-site in a container for the purpose of eliminating free liquids without a license for hazardous waste treatment shall comply with the requirements of this subsection.

(a) The absorbent material shall be added when the waste is first placed in the container.

(b) All containers shall be leak proof and in good overall condition.

(c) If the container begins to leak, the contents shall be removed and placed in a leak proof container immediately. All spill material shall be cleaned up and properly managed.

(d) The container shall be made or lined with materials which will not react with or be incompatible with the hazardous waste to be accumulated.

(e) The addition of absorbent material shall be performed to prevent the waste from spilling. If spills occur, the spilled waste shall be contained, collected and properly managed.

(f) Incompatible wastes may not be stabilized in this manner.

(g) Stabilization of ignitable or reactive waste shall be conducted so that the mixture does not:

1. Generate extreme heat or pressure, fire or explosion, or violent reaction,

2. Produce uncontrolled toxic mists, fumes, dusts or gases in sufficient quantities to threaten human health or the environment,

3. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions,

4. Damage the structural integrity of the device or facility containing the waste, or

5. Through other like means threaten human health or the environment.

(h) The generator shall manage any treated hazardous waste in accordance with the requirements of chs. NR 600 to 685.

(5) LICENSING REQUIREMENTS. (a) A small quantity generator may accumulate hazardous waste on-site in containers or tanks for 180 days or less without a storage license if the small quantity generator meets the requirements of subs. (1) and (2).

(b) A small quantity generator may accumulate hazardous waste on-site in a tank used for spill or leak containment without a storage license if the small quantity generator meets the requirements of sub. (3).

(c) A small quantity generator who accumulates hazardous waste on-site in containers or tanks without a storage license and who does not meet the requirements of subs. (1) to (3) is an operator of a hazardous waste storage facility and is subject to the storage facility requirements in chs. NR 630, 640 and 645 and the licensing requirements for storage facilities in ch. NR 680.

(d) A small quantity generator may combine absorbent material with a waste generated on-site without a treatment license if the generator meets the requirements of sub. (4).

(e) A small quantity generator who combines hazardous waste generated on-site in containers without a treatment license and who does not meet the requirements of sub. (4) is an operator of a hazardous waste treatment facility and is subject to the treatment facility requirements in chs. NR 630 and 640 and the licensing requirements for treatment facilities in ch. NR 680.

NR 610.09 GENERATORS OF ACUTE HAZARDOUS WASTE. (1) Any person who generates or accumulates in a calendar month acute hazardous waste in quantities equal to or less than the following requirements shall be subject only to the very small quantity generator regulations contained in s. NR 610.07. Persons who exceed the following quantities shall be subject to regulation as a large quantity generator under ch. NR 615:

(a) A total of one kilogram (2.2 pounds) of any acute hazardous waste listed in s. NR 605.09(2)(a), table II, s. NR 605.09(2)(b), table III, or identified in s. NR 605.09(3)(b), table IV.

(b) One hundred kilograms (220 pounds) of any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, of any acute hazardous waste listed in s. NR 605.09(2)(a), table II or (b), table III, or any commercial chemical product or manufacturing chemical intermediate listed in s. NR 605.09(3)(b), table IV.

(2) The period under s. NR 615.05(4) for accumulation of waste on-site begins when the accumulated acute hazardous waste exceeds the applicable exclusion limits in sub. (1).

NR 615 - LARGE QUANTITY GENERATOR STANDARDS

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NR 615.01 PURPOSE. The purpose of this chapter is to specify the requirements that apply to the generators of large quantities of hazardous waste.

NR 615.02 APPLICABILITY. Except as otherwise provided, this chapter applies to generators of greater than or equal to 1,000 kilograms (2,205 pounds) of non-acute hazardous waste in a calendar month. This chapter also applies to generators of less than 1,000 kilograms (2,205 pounds) of non-acute hazardous waste in a calendar month and who do not meet the requirements in ss. NR 610.07 or 610.08. This chapter applies to generators of acute hazardous waste that do not meet the requirements in s. NR 610.09. Except as otherwise provided, this chapter does not apply to solid waste generators that generate only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.;
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 615.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 615.04 EXEMPTIONS. (1) **SMALL AND VERY SMALL QUANTITY GENERATORS.** Any generator who generates or accumulates hazardous waste in quantities less than those specified in ss. NR 610.07(1), 610.08 and 610.09 is exempt from the requirements of this chapter, except as otherwise provided in ch. NR 610.

(2) **PESTICIDE CONTAINER RINSATE.** Farmers who generate waste pesticide containers which are a hazardous waste and who triple rinse each emptied pesticide container in accordance with s. NR 605.06(5) and dispose of the pesticide rinsate on their own farm in accordance with the prescribed dosage rate, in a manner which is consistent with the disposal instructions on the pesticide label and which shall not contaminate the waters of the state or create a hazard to persons or property, including fish and wildlife, are not required to comply with the requirements of ss. NR 600.04, 620.15 and chs. NR 630 to 685 or any of the requirements of this chapter except s. NR 615.06.

(3) WASTE LEAD ACID BATTERIES. A person who generates, transports or stores waste lead-acid batteries that are destined for off-site recycling is exempt from the requirements of this chapter if:

(a) The waste lead-acid batteries shall be managed to protect public health, safety, welfare and the environment.

(b) Handling techniques shall be used to prevent the waste lead-acid batteries from being damaged or broken.

(c) Any hazardous waste generated during the management of waste lead-acid batteries such as acid from any spills or discharges, lead plates or battery cases shall be sent to a facility which is approved to accept this waste.

NR 615.05 GENERAL REQUIREMENTS. (1) GENERAL. (a) All generators of solid waste shall determine if their waste is hazardous using the procedures specified in s. NR 615.06.

(b) Except as provided in s. NR 615.04(1), a generator of solid waste which is determined to be a hazardous waste under s. NR 605.07 shall comply with the requirements of this chapter.

(c) Except as provided in s. NR 620.14, the owner or operator of a hazardous waste facility who initiates a shipment of hazardous waste from that facility shall comply with the requirements of this chapter, regardless of whether the waste was originally generated at that facility.

(2) INFORMATION ON HAZARDOUS CHARACTERISTICS. A generator shall inform the owner or operator of a storage, treatment or disposal facility of the known hazardous characteristics of the waste prior to offering the hazardous waste to a transporter for delivery to the storage, treatment or disposal facility to enable the owner or operator of the storage, treatment or disposal facility to comply with the requirements of chs. NR 600 to 699 or with the conditions of the license issued under the provisions of ch. NR 680.

(3) STORAGE, TREATMENT AND DISPOSAL AND TRANSPORTATION. (a) Except as provided in s. NR 615.04, all generators shall either:

1. Store, treat, dispose or recycle all hazardous waste in an on-site hazardous waste facility or recycling facility which has received an operating license, interim license, variance or waiver, or is exempt from licensing under sub. (4) or (5), or under s. NR 630.04(1) to (16); or

2. Ensure delivery to an off-site hazardous waste facility or recycling facility which:

a. For facilities located outside of Wisconsin, is permitted by the EPA, is exempt from permitting or has interim status under 42 USC 6925(e); or

Note: The publication containing these regulations may be obtained from:

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b. Has been issued an operating license as a hazardous waste facility under chs. NR 600 to 685, or has an interim license, variance, waiver, or exemption from licensing under s. NR 630.04(1) to (16).

(b) If the generator sends the hazardous waste to an on-site hazardous waste facility or an off-site hazardous waste facility within Wisconsin which the generator owns or operates, the generator shall comply

with the requirements of chs. NR 600 to 685, except as provided in subs. (4) and (5) and s. NR 630.04(1) to (16).

(c) Except as provided in s. NR 620.04, generators may offer hazardous waste for transportation only to a person who has obtained a transportation service license from the department in accordance with ch. NR 620.

(4) ACCUMULATION OF WASTES BY GENERATORS FOR 90 DAYS OR LESS. (a) On-site accumulations. A generator who accumulates hazardous waste on-site, in containers or tanks, without a storage license, for 90 days or less shall comply with the requirements of this subsection:

1. Within 90 days, all waste shall be either:

a. Shipped off-site to a facility which meets the requirements of sub. (3)(a)2.; or

b. Treated, stored or disposed of in an on-site hazardous waste facility or an on-site recycling facility that has received an operating license, interim license, variance or waiver, or is exempt from licensing under s. NR 630.04(1) to (16) and is approved to accept the waste under the operating license, interim license, variance, waiver or exemption.

2. If the waste is placed in containers, the generator shall comply with the container requirements in ss. NR 640.08 to 640.12, 640.14 and 640.15. In addition, the generator is exempt from the closure and long-term care requirements of s. NR 685.05, except subs. (1) and (8), and ss. NR 685.06 and 685.07. The generator shall meet the following requirements:

a. The generator shall comply with the packaging, labeling, marking and placarding requirements in s. NR 615.09.

b. The generator shall inspect all areas where containers are stored as well as all containers used for storing hazardous waste at least weekly for evidence of leakage, corrosion or deterioration of the containers or discharge confinement structures, such as dikes.

c. The generator shall record the inspections under subpar. b. in an inspection log or summary. These records shall be kept for at least 3 years from the date of the inspection. At a minimum, these records shall include the date and time of inspection, the name of the inspector, a notation of the observation made, and the date and name of any repairs or other remedial actions.

d. If a container is not in good condition or if the contents of the storage container begin to leak, the hazardous waste in the container shall be recontainerized in a storage container in good condition.

e. A container holding hazardous waste shall always be closed during storage except when it is necessary to add or remove waste.

f. A container holding hazardous waste may not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

g. Containers holding ignitable or reactive waste shall be located at least 50 feet from the generation site's property line.

h. Storage containers holding hazardous waste which is incompatible with any waste or other materials stored nearby in other containers, waste piles, open tanks or surface impoundments shall be separated from them by means of a dike, berm, wall or other device.

i. Hazardous waste may not be placed in an unwashed container that previously held an incompatible waste or material, unless s. NR 630.17(2), is complied with.

j. The container shall be made or lined with materials which will not react with, and are otherwise compatible with the hazardous waste to be stored.

3. If the waste is placed in tanks, the generator shall comply with the tank system requirements of ch. NR 645, except the provisions of ss. NR 645.15, 645.16 and 645.17(1)(a)3. In addition, a generator is exempt from the closure and long-term care requirements of s. NR 685.05, except subs. (1) and (8), and ss. NR 685.06 and 685.07. The generator shall meet the following requirements:

a. The generator shall inspect all tanks used for storing hazardous waste at least weekly for evidence of leakage, or corrosion or deterioration of the tank or discharge confinement structures, such as dikes.

b. The generator shall inspect tanks used to store hazardous waste once each operating day to ensure that discharge control equipment, such as the waste feed cutoff, is in good working order, to ensure that the tank is being operated according to its design by gathering data from monitoring equipment, such as pressure or temperature gauges, and to ensure that the level of the waste in the tank complies with subpar. f.

c. The generator shall record the inspections under subpar. a. in an inspection log or summary. These records shall be kept for at least 3 years from the date of the inspection. At a minimum, these records shall include the date and time of inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

d. Incompatible waste may not be placed in the same tank unless s. NR 630.17(2) is complied with.

e. Storage tanks which contain volatile waste shall be operated in compliance with all appropriate air management rules contained in chs. NR 400 to 499, regarding the control of organic compound emissions.

f. Uncovered tanks shall be operated to ensure at least 2 feet of freeboard.

g. Hazardous waste may not be placed in a tank if the waste could cause the tank or its inner liner to rupture, leak, corrode or otherwise fail before the end of its intended life.

h. Ignitable or reactive waste may not be placed in a tank unless the waste is treated, rendered or mixed before or immediately after placement in the tank so that the resulting waste mixture or dissolution of material no longer meets the criteria of ignitable or reactive waste in s. NR 605.08(2) or (4); unless compliance with s. NR 630.17(2) is ensured; or unless the waste is stored or treated in such a way that it is protected from any condition which may cause the waste to ignite or react; or the tank is used solely for emergencies.

i. The owner or operator of a facility which stores ignitable or reactive waste in covered tanks shall comply with the buffer zone requirements for tanks in ch. Ind. 8.

j. Where hazardous waste is continuously fed into a tank, the tank shall be equipped with a means to stop this inflow, such as a waste feed cutoff system or a bypass system to a stand-by tank.

4. The date upon which each period of accumulation begins shall be clearly marked and visible for inspection on each container or tank.

5. The generator shall comply with the contingency plan and emergency procedures in s. NR 630.22 and personnel training requirements in s. NR 630.16.

6. The identity and location of all stored hazardous waste shall be known throughout the entire accumulation period.

7. The storage of hazardous waste shall be conducted in such a manner that no discharge of hazardous waste occurs.

8. As provided in s. NR 600.07, the department may require a generator to comply with all or part of the requirements of chs. NR 630 to 685, if the department determines that there is a potential for discharge of the hazardous waste or hazardous constituents or determines that a discharge has occurred at the generation site.

9. While being accumulated on site, each container and tank shall be labeled or marked clearly with the words "Hazardous Waste".

(b) Extension of 90-day period. A generator who accumulates hazardous waste for more than 90 days in containers or tanks is an operator of a hazardous waste storage facility and is subject to the facility requirements of s. NR 600.04 and chs. NR 630 to 685 and the licensing requirements of s. NR 620.15 and ch. NR 680, unless the generator has been granted an extension to the 90-day period. An extension may be granted by the department if hazardous wastes must remain on-site for longer than 90 days due to unforeseen, temporary and uncontrollable circumstances. An extension of up to 30 days may be granted at the discretion of the department on a case-by-case basis. Extensions:

1. Shall be applied for in writing. Written requests shall be submitted to the department and shall state the unforeseen, temporary and uncontrollable circumstances that caused the generator to apply.

2. Shall be issued in written form.

3. May be revoked by the department at any time if it is determined that revocation is appropriate to protect human health and the environment.

(c) Satellite accumulation. A generator without a storage license may accumulate in containers up to 55 gallons of hazardous waste or up to one quart of acutely hazardous waste listed in s. NR 605.09(2)(a), table II, or s. NR 605.09(3)(b), table IV, at or near any point of generation under the control of the generator of the waste without complying with par. (a) if all of the following conditions are met:

1. If a container is not in good condition or if the contents of the storage container begin to leak, the hazardous waste in the container shall be recontainerized in a storage container in good condition.

2. A container holding hazardous waste shall always be closed during storage except when it is necessary to add or remove waste.

3. A container holding hazardous waste may not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

4. The container shall be made or lined with materials which shall not react with and are otherwise compatible with the hazardous waste to be accumulated.

5. The generator shall mark the containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers.

6. A generator who accumulates either hazardous waste or acutely hazardous wastes listed in s. NR 605.09(2)(a), table II or (b), table IV in excess of the amounts allowed under this paragraph at or near the point of generation shall, with respect to that amount of excess waste, comply within 3 days with par. (a) or other applicable provisions of chs. NR 600 to 685. During the 3-day period, the generator shall continue to

comply with subds. 1. to 5. The generator shall also mark each container holding this excess accumulation with the date the excess amount began accumulating.

7. Any hazardous waste removed from the accumulation area shall be managed in accordance with par. (a) or other applicable provisions of chs. NR 600 to 685.

(5) ACCUMULATION IN SPILL CONTAINMENT TANKS. A generator who accumulates hazardous waste on-site in an tank used for spill or leak containment, without a storage license, shall comply with the requirements of this subsection:

(a) The tank shall be an integral part of a spill containment system which is used to collect hazardous waste from a spill or leak;

(b) The tank shall be normally empty, unless a spill or leak occurs;

(c) The generator shall remove all hazardous wastes which accumulate in the tank as a result of a spill or in as timely a manner as possible to prevent harm to human health and the environment if the owner or operator can demonstrate to the department that the removal of the released waste cannot be accomplished within 24 hours.

(d) The generator shall comply with the applicable tank requirements in sub. (4)(a)3.a. to j; and

(e) The generator shall manage any hazardous waste which is removed from the tank in accordance with the requirements of this chapter.

Note: A material that does not initially meet the definition of hazardous waste in s. NR 605.04 can become a hazardous waste after it is spilled or leaked. This would be true if:

1) The spilled or leaked material will not be used without treatment, for its originally intended purpose, and;

2) that material is listed in s. NR 605.09 and has not been excluded from the lists under s. NR 605.10, or it exhibits any of the characteristics of hazardous waste identified in s. NR 605.08.

For example, a spilled or leaked commercial chemical product having a generic name listed in s. NR 605.09(3)(b), table IV or (c), table V, would be hazardous waste if it was not going to be used, without treatment, for its originally intended purpose.

(6) TREATMENT WITH ABSORBENT MATERIAL BY GENERATORS. A generator who combines absorbent material with a waste generated on-site in a container for the purpose of eliminating free liquids without a hazardous waste treatment license shall comply with the requirements of this subsection:

(a) The requirements of s. NR 630.17(2). for ignitable, reactive and incompatible wastes;

(b) The requirements of sub. (4)(a)2.d. for containers not in good condition;

(c) The requirements of sub. (4)(a)2.j. for container materials;

(d) The generator shall combine absorbent material with a waste generated on-site only at the time that the waste is first placed in a container;

(e) The treatment shall be performed in such a way as to not allow any spillage of waste or treated waste. If spillage is unavoidable, the treatment shall take place in an area where all spilled waste can be contained and collected for immediate placement in the container in which the treatment is taking place.

(f) The generator shall manage any hazardous waste which is treated in accordance with the requirements of this chapter.

(7) STORAGE AND TREATMENT LICENSE REQUIREMENTS FOR GENERATORS. (a) A generator may accumulate hazardous waste on-site in containers or tanks for 90 days or less without a storage license if the generator meets the requirements of sub.(4).

(b) A generator may accumulate hazardous waste on-site in a tank used for spill or leak containment without a storage license if the generator meets the requirements of sub. (5).

(c) A generator who accumulates hazardous waste on-site in containers or tanks for 90 days or less without a storage license and who does not meet the requirements of sub. (4) or (5) is an operator of a hazardous waste storage facility and is subject to the storage facility requirements in ch. NR 630 and the licensing requirements for storage facilities in ch. NR 680.

(d) A generator may combine absorbent material with a waste generated on-site without a treatment license if the generator meets the requirements of sub.(6).

(e) A generator who combines absorbent material with a waste generated on site without a treatment license and who does not meet the requirements of sub. (6) is an operator of a hazardous waste treatment facility and is subject to the treatment facility requirements in ch. NR 630 and the licensing requirements for treatment facilities in ch. NR 680.

NR 615.06 HAZARDOUS WASTE DETERMINATION. A person who generates a solid waste shall use the following procedure to determine if that waste is a hazardous waste:

(1) The generator shall first determine if the solid waste is excluded from regulation under s. NR 605.05.

(2) The generator shall then determine if the solid waste is listed as a hazardous waste in s. NR 605.09.

(3) If the waste is not listed as a hazardous waste in s. NR 605.09, then the generator shall determine whether the waste is a characteristic hazardous waste identified in s. NR 605.08 by either:

(a) Testing the waste according to the methods in s. NR 605.08; or

(b) Applying knowledge of the hazardous characteristic of the solid waste considering the materials or the processes used.

(4) If a generator changes any processes in a way that could affect the characteristics of any solid waste produced, the generator shall again follow the hazardous waste determination procedures of this section.

(5) A generator shall keep records of any test results, waste analyses or other determinations made in accordance with the requirements of this section for at least 3 years from the date that the waste was last sent to an on-site or off-site storage, treatment or disposal facility. Upon written notice from the department to the generator, the period of retention may be extended beyond 3 years. The notice shall specify the records or types of records that are to be retained.

(6) If the waste is determined to be hazardous, the generator shall refer to chs. NR 600 to 685 for possible exclusions pertaining to the management of the generator's specific waste.

NR 615.07 IDENTIFICATION NUMBERS. (1) A generator may not treat, store, dispose of, recycle, transport or offer for transportation, hazardous waste without an identification number.

(2) A generator who has not received an identification number may obtain one by applying to EPA using the notification form specified in s. NR 600.05.

(3) A generator may not offer hazardous waste to transporters or to storage, treatment, disposal or recycling facilities that have not received an identification number.

NR 615.08 MANIFEST SYSTEM. (1) Any generator who transports, or offers for transportation, hazardous waste for off-site storage, treatment, disposal or recycling shall prepare a uniform manifest form before the waste is transported.

Note: The Wisconsin uniform manifest form may be obtained from the department of natural resources district offices at no charge. The department shall not provide the Wisconsin uniform manifest form for use by generators for shipments of only non-hazardous solid waste, except for the shipment of PCBs. The uniform manifest form should not be used for shipments of only non-hazardous solid waste, except for PCBs.

(2)(a) If the state to which the shipment is consigned and manifested, supplies the uniform manifest form and requires its use, then the generator shall use that manifest form.

(b) If the consignment state does not supply the uniform manifest form but Wisconsin supplies a manifest form and requires its use, then the generator shall use the Wisconsin uniform manifest form.

(3) A generator shall specify on the manifest one designated facility, which if in Wisconsin has received an operating license, interim license, variance, waiver or is exempt from licensing under s. NR 630.04(1) to (16) and is approved to accept the waste shipment under the operating license, interim license, variance, waiver or exemption. If the designated facility is outside of Wisconsin, the generator shall specify on the manifest a facility which has an EPA permit, interim status or is exempt from permitting under the resource conservation and recovery act, or a permit or approval from an authorized state, to handle the waste described on the manifest.

(4) A generator may also specify on the manifest one alternate facility which meets the requirements of sub. (3) in accordance with sub. (2) and which is licensed to handle the generator's waste in the event an emergency prevents delivery of the waste to the primary designated facility. If the alternate facility is located in a different state than the designated facility under sub. (3), and the state in which the alternate facility is located supplies a uniform manifest form and requires its use, the generator shall provide the transporter with a second uniform manifest form from the alternate facility state which is completed in accordance with sub. (8) or (9).

(5) If the transporter is unable to deliver the hazardous waste to the designated facility or the alternate facility, the generator shall either designate another facility or instruct the transporter to return the waste.

(6) The generator shall initiate the use of the manifest. The generator shall fill out all required information and sign and date the manifest by hand. After the transporter signs and dates the manifest, the generator shall retain one copy, shall, within 5 business days, send a copy to the department and a copy to the consignment state, if the consignment state is not Wisconsin and shall give the remaining copies to the transporter to accompany the hazardous waste shipment.

Note: An employe of the generator need not be an authorized representative to sign a manifest on behalf of the generator.

(7) The generator shall maintain on file the copy of the manifest retained in accordance with sub. (6) and the copy received from the operator of the designated facility to which the hazardous waste is shipped. These copies shall be retained for a period of 3 years from the date that the waste was accepted by the initial transporter, and shall be available at reasonable times for inspection by the department. Upon written notice from the department to the generator, the period of retention may be extended beyond 3 years. The notice shall specify the records or types of records that are to be retained.

(8) If the generator uses the Wisconsin uniform manifest form, the form shall contain, at a minimum, the following information, in accordance with the instructions included in the manifest form:

(a) The manifest document number which is the EPA 12 digit identification number assigned to the generator plus a unique 5 digit document number assigned to the uniform manifest form by the generator for recording and reporting purposes.

(b) The generator's name and mailing address.

(c) The generator's phone number.

(d) The identification number, name and phone number of each transporter.

(e) The EPA identification number, phone number, name and address of the designated facility and the alternative facility, if applicable.

(f) The U.S. DOT description of the waste including the proper shipping name, hazard class and identification number required by 49 CFR 172.101, 172.102, 172.202 and 172.203, November 1, 1985.

Note: The publication containing these regulations may be obtained from:

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The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(g) The number and type of containers used to transport the waste.

(h) The total quantity of the waste with the appropriate unit of measure (weight or volume).

(i) Any special handling instructions or any other additional information.

(j) One primary hazardous waste number corresponding to the name of the waste being shipped, selected using the following criteria where more than one waste number may correspond to the name of the waste:

1. If the waste displays the characteristic of reactivity in s. NR 605.08(4), and is not listed in s. NR 605.09, the number shall be D003.

2. If subd. 1. does not apply, the waste displays a characteristic in s. NR 605.08, and is not listed in s. NR 605.09, the number selected shall be based on the prevalent hazardous waste characteristic displayed.

3. If more than one hazardous waste number listed in s. NR 605.09 may describe the waste, the number selected shall be the one for which the basis for listing is the reactivity characteristic, if it exists.

4. If subd. 3. does not apply, the number selected shall be the one which has more than one characteristic as a basis for listing, if it exists.

5. If subds. 3. and 4. do not apply, the number selected shall be based on the preponderant source of the waste mixtures.

(k) Certification that the uniform manifest form is accurately filled out, that the material is properly described, packaged, marked, labeled and in proper condition to be transported or has been received and accepted in accordance with chs. NR 600 to 685 and the generator has complied with the waste minimization requirements of 42 USC 6922(b).

Note: The publication containing these regulations may be obtained from:

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(l) Any additional description for the materials and any handling codes for the wastes listed.

(9) If the generator uses a manifest from the consignment state, the generator shall complete the manifest in accordance with the consignment state's requirements and shall, at the time the generator provides a copy of the manifest to the department in accordance with sub. (6), provide the department with the following information:

(a) The transporter's phone number.

(b) The designated facility's phone number.

(c) One primary hazardous waste number corresponding to the name of the waste being shipped, selected based on the criteria specified in sub. (8)(j).

(d) Any additional description for the materials and any handling codes for the wastes listed.

(10) A generator subject to sub. (9) who uses a manifest from a consignment state that is not Wisconsin shall send a photocopy of the copy received from the operator of the facility to which the hazardous waste is shipped, to the department within 5 business days of receiving the copy from that facility.

(11) For bulk shipments of hazardous waste within the United States solely by water, the generator shall send 3 copies of the manifest dated and signed in accordance with this section and s. NR 615.08 to the owner or operator of the designated facility or the last transporter to handle the waste in the United States. Copies of the manifest are not required for each transporter.

(12) For small shipments of hazardous waste within the United States that originate at the site of generation, the generator shall send at least 3 copies of the manifest dated and signed in accordance with this section to:

(a) The next non-rail transporter, if any; or

(b) The designated facility if transported solely by rail; or

(c) The last rail transporter to handle the waste in the United States if exported by rail.

(13) In the case of exports, a transporter may not accept hazardous waste from a primary exporter or other person if:

(a) The transporter knows the shipment does not conform to the EPA acknowledgement of consent; and

(b) Unless, in addition to a manifest signed in accordance with the provisions of s. NR 615.08, the waste is also accompanied by an EPA acknowledgement of consent which, except for shipment by rail, is attached to the manifest, or shipping paper for exports by water.

(14) In the case of exports, a transporter shall provide a copy of the manifest to the U.S. customs official at the point the waste leaves the United States, and shall ensure that a copy of the EPA acknowledgement of consent accompanies the hazardous waste.

NR 615.09 PRE-TRANSPORT REQUIREMENTS. (1) PACKAGING. Before transporting hazardous waste or offering hazardous waste for transportation, every generator shall package the hazardous waste to be shipped in accordance with U. S. DOT regulations on packaging in 49 CFR Parts 173, 178 and 179, November 1, 1985.

(2) LABELING AND MARKING. Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator shall label and mark each package in accordance with applicable U. S. DOT regulations on hazardous materials in 49 CFR Part 172, November 1, 1985.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(a) Before placing hazardous waste in an accumulation area pursuant to s. 615.05(4)(a) or placing hazardous waste in an on-site storage facility pursuant to s. NR 615.05(3)(a)1., a generator shall mark each container in accordance with par. (b), with the words "HAZARDOUS WASTE", or with other words that identify the contents of the container as hazardous waste.

(b) Before transporting, or offering hazardous waste for transportation off-site, a generator shall mark each container used to transport hazardous waste with the following words: "HAZARDOUS WASTE - state and federal law prohibits improper disposal. If found contact the nearest police department, division of emergency government, or department of natural resources. Generator's name and address Manifest document number ". In addition to placing the manifest document number on the container in the space indicated, a generator shall also place the state manifest document number on the container in the space indicated, if the manifest has such a number. For the purpose of this section, "state manifest document number" means the document number printed on the manifest in item A by the state that provides the manifest.

(3) PLACARDING. Before transporting hazardous waste, or offering hazardous waste for transportation off-site, a generator shall offer the initial transporter the appropriate placards required by U. S. DOT regulations for hazardous materials in 49 CFR Part 172, Subpart F, November 1, 1985.

Note: The publications containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

NR 615.11 REPORTING. (1) ANNUAL ACTIVITY REPORT. (a) Except as provided in par. (b), a generator who ships any hazardous waste off-site to a treatment, storage or disposal facility within the United States shall prepare and submit an activity report to the department by March 1 of each year. The activity report shall be submitted on department forms, shall cover generator activities during the previous calendar year and shall, at a minimum, include the following information:

1. The identification number, name and address of the generator;
2. The calendar year covered by the report;
3. The identification number, name and address for each off-site waste treatment, storage or disposal facility in the United States to which hazardous waste was shipped during the calendar year;
4. The name and identification number of each transporter used during the calendar year for shipments to a treatment, storage or disposal facility within the United States;
5. A description, hazardous waste number from s. NR 605.09, U. S. DOT hazard class and quantity of each hazardous waste shipped off-site. This information shall be listed by identification number of each off-site facility to which hazardous waste was shipped;
6. A description of the efforts undertaken during the calendar year to reduce the volume and toxicity of hazardous waste generated;
7. A description of the changes in volume and toxicity of hazardous waste actually achieved during the calendar year in comparison to previous years to the extent information is available for the years prior to 1984; and
8. A certification signed by the generator or the generator's authorized representative as specified in s. NR 620.15(2), 680.41 or 680.05(2), stating that "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Note: Reporting for exports of hazardous waste is not required on the activity report forms. A separate annual export report requirement is in s. NR 615.12.

Note: The activity report forms may be obtained from the Department of Natural Resources, P.O. Box 8094, Madison, Wisconsin 53708 at no charge.

(b) Any generator who treats, stores or disposes of hazardous waste on-site, except for waste managed solely in an on-site accumulation area in accordance with s. NR 610.08(1)(l) or 615.05(4), shall submit an activity report covering those wastes in accordance with s. NR 630.40.

(c) A generator shall retain a copy of each activity report for a period of at least 3 years from the due date of the report. Upon written notice from the department to the generator, the period of retention may be extended beyond 3 years. The notice shall specify the records or types of records to be retained.

(2) EXCEPTION REPORT. (a) A generator who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 35 days of the date the waste was accepted by the initial transporter shall contact the transporter or owner or operator of the designated facility to determine the status of the hazardous waste.

(b) A generator shall submit an exception report to the department if a copy of the manifest with the handwritten signature of the owner or operator of the designated facility is not received by the generator within 45 days of the date the waste was accepted by the initial transporter. The exception report shall include:

1. A legible copy of the manifest for which the generator does not have confirmation of delivery; and
2. A cover letter signed by the generator, or an authorized representative, explaining the efforts taken to locate the hazardous waste and the results of those efforts.

(c) Generators shall keep a copy of each exception report for a period of at least 3 years. Upon written notice from the department to the generator, the period of retention may be extended beyond 3 years. The notice shall specify the records or types of records to be retained.

(3) ADDITIONAL REPORTS. The department may require generators to furnish additional reports concerning the quantities and disposition of wastes identified or listed in s. NR 605.09.

NR 615.12 EXPORTS OF HAZARDOUS WASTE. (1) When shipping hazardous waste outside the United States, the primary exporter shall:

(a) The primary exporter shall notify the department and the EPA administrator in writing 60 days before the initial shipment of hazardous waste to each country in each calendar year. This notification may cover export activity that extends over a 12 month or lesser period. Notices sent to the EPA administrator shall be sent to:

Office of International Activities (A-106)
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

with "Attention: Notification of Intent to Export" prominently displayed on the front of the envelope.

1. The notification shall be in writing, signed by the primary exporter, and include the information in this subdivision:

- a. Name, mailing address, telephone number and EPA ID number of the primary exporter;
- b. By consignee, for each hazardous waste type the notification shall include:

1) A description of the hazardous waste and the hazardous waste number from ss. NR 605.08 and 605.09, U.S. DOT proper shipping name, hazard class and ID number for each hazardous waste as identified in 49 CFR Parts 171 to 177;

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

2) The estimated frequency or rate at which waste is to be exported and the period of time over which waste is to be exported.

3) The estimated total quantity of the hazardous waste in units as specified in the instructions to the Wisconsin uniform hazardous waste manifest form (4400-66);

4) All points of entry to and departure from each foreign country through which the hazardous waste will pass;

5) A description of the means by which each shipment of the hazardous waste shall be transported, such as mode of transportation vehicle including air, highway, rail or water and type of container, such as drums, boxes and tanks;

6) A description of the manner in which the hazardous waste shall be treated, stored or disposed of in the receiving country, such as land or ocean incineration, other land disposal, ocean dumping or recycling;

7) The name and site address of the consignee and any alternate consignee; and

8) The name of any transit countries through which the hazardous waste will be sent and a description of the approximate length of time the hazardous waste will remain in each country and the nature of its handling while there;

2. Except for changes to the primary exporter's telephone number, the mode of transportation used, such as air, rail or water, and decreases in the quantity indicated on the manifest, when the conditions specified on the original notification change, including any quantity of hazardous waste that exceeds the estimate specified in the original notification, the primary exporter shall meet the requirements of this subdivision;

a. The primary exporter shall provide the department and EPA with a written renotification of the change.

b. The shipment may not take place unless;

1) The primary exporter obtains the consent of the receiving country to the changes as well as the consent to the charge from all points of entry and departure located in transit countries, except for changes to subd. 1.b.4) and b.8), and

2) The primary exporter receives an EPA acknowledgment of consent reflecting the receiving country's consent to the changes.

3. Upon request by the department or EPA, a primary exporter shall furnish to EPA any additional information which a receiving country requests in order to respond to a notification.

Note: In conjunction with the department of state, EPA will provide a complete notification to the receiving country and any transit countries. A notification is complete when EPA receives a notification which EPA determines satisfies the requirements of sub. (1). Where a claim of confidentiality is asserted

with respect to any notification information required by sub. (1), EPA may find the notification not complete until any claim is resolved in accordance with s. NR 2.19.

Where the receiving country consents to the receipt of the hazardous waste, EPA will forward an EPA acknowledgment of consent to the primary exporter for purposes of s. NR 615.12(1)(h). Where the receiving country objects to receipt of the hazardous waste or withdraws a prior consent, EPA will notify the primary exporter in writing. EPA will also notify the primary exporter of any responses from transit countries.

(b) When a shipment cannot be delivered for any reason to the designated or alternate consignee the primary exporter shall comply with the requirements of this paragraph:

1. The primary exporter shall renotify the department and EPA of the change in the conditions of the original notification to allow shipment to a new consignee in accordance with s. NR 615.12(1)(a)2. and obtain an EPA acknowledgement of consent prior to delivery; or

2.a. The primary exporter shall instruct the transporter to return the waste to the primary exporter in the United States or designate another facility within the United States; and

b. The primary exporter shall instruct the transporter to revise the manifest in accordance with the primary exporter's instructions.

(c) The primary exporter shall require that the foreign consignee confirm in writing the delivery of the hazardous waste to the facility in the foreign country and to describe any significant discrepancies between the manifest and the shipment. A copy of the manifest signed by the foreign consignee may be used for this purpose.

(d) The primary exporter shall meet the requirements under s. NR 615.08 for the manifest, except that:

1. In place of the name, site address and identification number of the designated facility, the name and address of the foreign consignee shall be used.

2. In place of the name, site address and identification number of a licensed alternate facility, the primary exporter may enter the name and site address of any alternate consignee.

3. The primary exporter shall identify the point of departure from the United States through which the hazardous waste shall travel before entering a foreign country, and shall identify the point of departure in box 15 of the manifest, special handling instructions and additional information.

4. The primary exporter shall obtain and use the Wisconsin uniform manifest form if Wisconsin supplies the manifest and requires its use.

(e) The primary exporter shall have consent of the receiving country to accept the hazardous waste.

(f) The primary exporter shall require a copy of the EPA acknowledgement of consent that accompanies the hazardous waste shipment. The EPA acknowledgement of consent shall be attached to the manifest or shipping paper for exports by bulk shipment by water vessel. The EPA acknowledgement of consent for exports by rail shall accompany the hazardous waste shipment but need not be attached to the manifest.

(g) The hazardous waste shipment shall conform to the terms of the receiving country's written consent as reflected in the EPA's acknowledgement of consent.

(h) The primary exporter shall add the following statement to the end of the first sentence of the certification in box 16, generator's certification on the Wisconsin uniform hazardous waste manifest form, 4400-66: "and conforms to the terms of the attached EPA acknowledgement of consent".

(i) The primary exporter shall provide the transporter with an additional copy of the manifest for delivery to the U.S. customs official at the point the hazardous waste leaves the United States.

(j) Primary exporters of hazardous waste shall file with the department and the EPA no later than March 1 of each year, a report summarizing the types, quantities, frequency and ultimate destination of all hazardous waste exported during the previous calendar year. Reports shall include the following:

1. The identification number, name and mailing and site address of the exporter;

2. The calendar year covered by the report;

3. The name and site address of each consignee;

4. By consignee, for each hazardous waste exported, a description of the hazardous waste, the hazardous waste number from ss. NR 605.08 and 605.09, U. S. DOT hazard class, the name and EPA ID number, where applicable, for each transporter used, the total amount of waste shipped and number of shipments pursuant to each notification;

5. Except for hazardous waste produced by exporters of greater than 100 kg but less than 1000 kg in a calendar month, unless provided pursuant to s. NR 615.11(1) and (2):

a. A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated; and

b. A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent information is available for years prior to 1984.

6. A certification signed by the primary exporter which states:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

7. Reports shall be sent to the following address: Office of International Activities (A-106), Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and Wisconsin Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, P.O. Box 7921, Madison, WI 53707.

(k) The primary exporter shall keep a copy of each notification of intent to export for a period of at least 3 years from the date the hazardous waste was accepted by the initial transporter;

(l) The primary exporter shall keep a copy of each EPA acknowledgment of consent for a period of at least 3 years from the date the hazardous waste was accepted by the initial transporter;

(m) The primary exporter shall keep a copy of each confirmation of delivery of the hazardous waste from the consignee for at least 3 years from the date the hazardous waste was accepted by the initial transporter; and

(n) The primary exporter shall keep a copy of each annual export report for a period of at least 3 years from the due date of the report.

(2) The generator shall file an exception report with the department and the EPA pursuant to s. NR 615.11(2), if:

(a) The generator has not received a copy of the manifest signed by the transporter stating the date and place of departure from the United States within 45 days from the date it was accepted by the initial transporter; or

(b) Within 90 days from the date the hazardous waste was accepted by the initial transporter, the generator has not received written confirmation from the foreign consignee that the hazardous waste was received.

(c) The waste is returned to the United States.

NR 615.13 IMPORTS OF HAZARDOUS WASTE. (1) Except as provided in sub. (2), any person who imports hazardous waste from abroad into Wisconsin shall comply with the requirements of this section.

(2) When importing a hazardous waste, all the requirements of s. NR 615.08 for the manifest shall be met except that:

(a) In place of the generator's name, address and identification number, the name and address of the foreign generator and the importer's name, address and identification number shall be used.

(b) In place of the generator's signature on the certification statement, the U.S. importer or agent thereof shall sign and date the certification and obtain the signature of the original transporter.



NR 620 - TRANSPORTER STANDARDS AND LICENSING REQUIREMENTS

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NR 620.01 PURPOSE. The purpose of this chapter is to specify the requirements that apply to transportation of hazardous waste and the requirements for licensing of transporters of hazardous waste.

NR 620.02 APPLICABILITY. Except as otherwise provided, this chapter applies to transporters of hazardous waste. This chapter does not apply to solid waste transporters that transport only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 620.03 DEFINITIONS. (1) The definitions in s. NR 600.03 apply to this chapter.

(2) In this chapter, "equipment operator" means any owner or operator of either a hazardous waste transportation service or the vehicles or equipment used for transporting hazardous waste, or any individual employed to operate hazardous waste transportation equipment or vehicles.

NR 620.04 EXEMPTIONS. The following are exempt from the requirements of this chapter:

(1) On-site transportation of hazardous waste by generators or by owners or operators of hazardous waste facilities with final operating licenses.

(2) A person who transports waste lead-acid batteries destined for recycling and who complies with s. NR 610.09.

NR 620.05 GENERAL REQUIREMENTS. (1) Except as otherwise provided in s. NR 620.04, no person may transport hazardous waste in Wisconsin unless the person has obtained a transportation service license from the department, in accordance with the requirements of s. NR 620.15.

(2) A transporter of hazardous waste shall comply with ch. NR 615 if the transporter:

(a) Mixes wastes of different shipping descriptions by placing them in a single container; or

(b) Transports hazardous waste into Wisconsin from abroad.

(3) Transportation services collecting only hazardous wastes that do not require a manifest as specified in s. NR 610.07(1) shall comply with all the requirements of this chapter except the manifest requirements specified in s. NR 620.07 unless the very small quantity generator chooses to use the manifest.

Note: Hazardous waste facilities may require the use of a manifest for recordkeeping purposes before accepting the hazardous waste.

(4) Except as otherwise provided in s. NR 620.04, no person may transport hazardous waste in Wisconsin unless the person has met the notification requirements specified in s. NR 600.05.

NR 620.06 IDENTIFICATION NUMBER. (1) A transporter may not transport hazardous wastes in Wisconsin without an identification number.

(2) A transporter who has not received an identification number may obtain one by applying to EPA using the notification form specified in s. NR 600.05.

NR 620.07 MANIFEST SYSTEM. Except as provided in sub. (1), a transporter may not accept hazardous waste from a generator unless the hazardous waste is accompanied by a manifest signed in accordance with s. NR 615.08.

(1) Transporters collecting hazardous wastes subject to the special requirements of s. NR 610.07(1) for small quantity generators are exempt from the provisions of this section and s. NR 620.08 for those wastes unless the very small quantity generator chooses to use the manifest.

(2)(a) In the case of exports, a transporter may not accept hazardous waste from a primary exporter if the transporter knows that the shipment does not conform to the EPA acknowledgement of consent.

(b) In the case of exports, a transporter may accept hazardous waste from a primary exporter if, in addition to a manifest signed in accordance with s. NR 615.08, the hazardous waste is also accompanied by an EPA acknowledgement of consent, which, except for shipment by rail, is attached to the manifest or, for export bulk shipments by water, is attached to the shipping paper.

(3) Hazardous waste which was generated out of state and is being transported through Wisconsin for delivery to an out-of-state hazardous waste facility shall be accompanied by a manifest that meets the requirements of subs. (3) to (5) and (7) to (9), 620.08 and 620.09.

(4)(a) The transporter shall be responsible for ensuring that a copy of a manifest meeting the requirements of ss. NR 620.07(3) to (5) and (7) to (9), 620.08 and 620.09, signed by the generator, accompanies the shipment of hazardous waste at all times, except as provided in sub. (1).

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) In the case of exports, the transporter shall ensure that a copy of the EPA acknowledgement of consent accompanies the hazardous waste along with a copy of the manifest.

(5) Before transporting the hazardous waste, the transporter shall sign and date the manifest acknowledging acceptance of the hazardous waste from the generator. The transporter shall return the original and one signed copy of the manifest to the generator before leaving the generator's premises.

Note: An employe of a transporter need not be an authorized representative to sign a manifest on behalf of the transporter.

(6) If the hazardous waste shipment is transferred to another transporter, the original transporter shall be responsible for retaining a copy of the manifest in accordance with s. NR 620.09. The original transporter shall give the 3 remaining copies of the manifest, plus an extra copy needed to replace the copy retained in accordance with s. NR 620.09, to the new transporter. The new transporter shall sign and date the manifest acknowledging acceptance of the hazardous waste. The second transporter shall complete boxes 7., 8. and F. of the manifest with the second transporter's name, 12 digit identification number and transporter's telephone number, respectively.

(7) The transporter shall, upon delivery of the hazardous waste to the designated facility, obtain the signature and date of acceptance from the owner or operator of the designated facility on the manifest. The transporter shall retain one copy of the manifest in accordance with s. NR 620.09, and shall give the remaining copies to the owner or operator of the designated facility.

(8) The requirements of subs. (3) to (6) and (8) do not apply to transporters of bulk shipments of hazardous waste by a water vessel if:

Note: bulk shipment by water vessel is defined in s. NR 600.03(20)

(a) The hazardous waste is delivered by bulk shipment in a water vessel to the designated facility;

(b) A shipping paper containing all the information required on the manifest, excluding the identification numbers, generator certification and signatures, accompanies the hazardous waste and, for exports, an EPA acknowledgement of consent accompanies the hazardous waste;

(c) The delivering transporter obtains the date of delivery and handwritten signature of the owner or operator of the designated facility on either a manifest or a shipping paper;

(d) The person delivering the hazardous waste to the initial bulk shipment water vessel transporter obtains the date of delivery and signature of the bulk shipment by water vessel transporter on a manifest and forwards it to the designated facility; and

(e) A copy of the shipping paper or manifest is retained by each bulk shipment water vessel transporter in accordance with s. NR 620.09.

(9) For shipments involving rail transportation, the requirements of subs. (4) and (6) to (8) do not apply and the following requirements shall apply:

(a) When accepting hazardous waste from a non-rail transporter, the initial rail transporter shall:

1. Sign and date the manifest acknowledging acceptance of the hazardous waste;
2. Return a signed copy of the manifest to the non-rail transporter;
3. Forward all remaining copies of the manifest, except one, to:
 - a. The next non-rail transporter, if any;
 - b. The designated facility, if the shipment is delivered to that facility by rail; or
 - c. The last rail transporter designated to handle the waste in the United States; and
4. Retain one copy of the manifest and rail shipping paper in accordance with s. NR 620.09.

(b) Rail transporters shall ensure that a shipping paper containing all the information required on the manifest, excluding the identification numbers, generator certification and signatures, accompanies the hazardous waste at all times. In addition, for exports, an EPA acknowledgement of consent accompanies the hazardous waste at all times.

Note: Intermediate rail transporters are not required to sign either the manifest or shipping paper.

(c) When delivering hazardous waste to the designated facility, a rail transporter shall:

1. Obtain the date of delivery and handwritten signature of the owner or operator of the designated facility on the manifest or the shipping paper if the manifest has not been received by the facility; and
2. Retain one copy of the manifest or signed shipping paper in accordance with s. NR 620.09.

(d) When delivering hazardous waste to a non-rail transporter, a rail transporter shall:

1. Obtain the date of delivery and handwritten signature of the next non-rail transporter on the manifest; and
2. Retain a copy of the manifest in accordance with s. NR 620.09.

(e) Before accepting hazardous waste from a rail transporter, a non-rail transporter shall sign and date the manifest and provide a copy to the rail transporter.

(10) Transporters who transport hazardous waste out of the United States shall:

- (a) Indicate on the manifest the date the hazardous waste left the United States; and
- (b) Sign the manifest and retain one copy in accordance with s. NR 620.09(3); and
- (c) Return a signed copy of the manifest to the generator.

(d) Give a copy of the manifest to a U.S. customs official at the point of departure from the United States.

NR 620.08 COMPLIANCE WITH MANIFEST SYSTEM. (1) The transporter shall deliver the entire quantity of the hazardous waste that was accepted from the generator or transporter to:

(a) The designated facility on the manifest; or

(b) The alternate facility specified on the manifest, if the hazardous waste cannot be delivered to the designated facility because an emergency prevents delivery; or

(c) The next designated transporter; or

(d) The place outside the United States designated by the generator.

(2) If the hazardous waste cannot be delivered in accordance with sub. (1), the transporter shall contact the generator for further directions and shall revise the manifest or obtain a second manifest, in accordance with s. NR 615.08(4) and (5), and shall, if necessary, return the waste to the generator as undeliverable.

NR 620.09 RECORD KEEPING. (1) A transporter of hazardous waste shall keep a copy of the manifest, if required by s. NR 620.07, signed by the generator, that transporter, and the next designated transporter or the owner or operator of the designated facility, for a period of 3 years from the date the hazardous waste was accepted by the initial transporter.

(2) For shipments delivered to the designated facility by bulk shipment by water vessel, each bulk shipment by water vessel transporter shall retain a copy of a shipping paper containing all the information specified in s. NR 620.07(8)(b) for a period of 3 years from the date the hazardous waste was accepted by the initial transporter.

(3) For shipments delivered to the designated facility by rail:

(a) The initial rail transporter shall keep a copy of the manifest and shipping paper with all the information specified in s. NR 620.07(9)(b) for a period of 3 years from the date the hazardous waste was accepted by the initial transporter; and

(b) The final rail transporter shall keep a copy of the signed manifest, or the shipping paper if signed by the designated facility in lieu of the manifest, for a period of 3 years from the date the hazardous waste was accepted by the initial transporter.

(4) A transporter who ships hazardous waste out of the United States shall keep a copy of the manifest indicating that the hazardous waste left the United States, for a period of 3 years from the date the hazardous waste was accepted by the initial transporter.

(5) The periods of retention referred to in this section may be extended beyond 3 years upon written notice from the department to the transporter, specifying the records or types of records that are to be retained.

NR 620.10 HAZARDOUS WASTE DISCHARGES. (1) If a discharge of hazardous waste occurs during transportation, the transporter shall:

(a) Telephone the division of emergency government and comply with the requirements of s. 144.76, Stats., and ch. NR 158, and

Note: The division of emergency government's 24 hour number is (608) 266-3232, collect calls accepted.

(b) Give notice as required by 49 CFR 171.15, amended June 19, 1989 and effective January 1, 1990, to the national response center at (800) 424-8802.

(c) Report in writing as required by 49 CFR 171.16, amended June 19, 1989 and effective January 1, 1990, to the director, office of hazardous materials regulations, materials transportation bureau, U. S. DOT, Washington, D.C. 20590.

(2) A bulk shipment water transporter who has discharged hazardous waste shall give the same notice as required by 33 CFR 153.203, July 1, 1988, for oil and hazardous substances.

Note: The publications containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the office of the department, the secretary of state and the revisor of statutes.

(3) The removal and subsequent containerization, transportation and disposal of spilled hazardous waste shall be in compliance with the provisions of chs. NR 600 to 685.

(4) If the department determines that immediate removal of the hazardous waste is necessary to protect human health or the environment, the department may authorize the removal of the hazardous waste by transporters who do not have hazardous waste transportation service licenses or identification numbers and without preparation of a manifest.

NR 620.11 PACKAGING, LABELING, MARKING AND PLACARDING. (1) The requirements of this section apply to both intrastate and interstate transportation.

(2) A transporter may not move a transport vehicle containing hazardous waste unless the hazardous waste is packaged in accordance with the applicable requirements of 49 CFR Part 173, November 1, 1985.

(3) A transporter may not transport hazardous waste unless the hazardous waste packages are labeled and marked in accordance with the applicable requirements of 49 CFR Part 172, November 1, 1985.

(4) A transporter may not move a transport vehicle containing hazardous waste unless it is placarded in accordance with the applicable requirements of 49 CFR Part 172, November 1, 1985.

Note: The publications containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the office of the department, the secretary of state and the revisor of statutes.

NR 620.12 OPERATIONAL REQUIREMENTS. (1) Containerized hazardous waste shall be loaded onto the transport vehicle in such a manner that the containers are reasonably secured against movement within the transport vehicle.

(2) Tank transport vehicles may not be left unattended during the loading or unloading of hazardous waste.

(3) No tools or equipment likely to damage the effectiveness of the closure of any container shall be used for the loading or unloading of hazardous waste.

Note: U. S. DOT regulations concerning operational aspects of transportation of hazardous materials on public highways are given in 49 CFR Part 177, November 1, 1988.

NR 620.13 EQUIPMENT OPERATOR QUALIFICATIONS. (1) Equipment operators for transportation services shall be properly trained in the utilization of the equipment they are authorized to operate. Each transportation service shall have a training program for handling and transportation vehicle operators. Topics in the training program shall include the problems and potential hazards posed by the transportation and disposal of hazardous waste and equipment inspection techniques.

(2) Records of operator training and equipment inspections shall be kept for a period of 3 years by the transportation service. Upon written notice from the department to the transporter, the period of retention may be extended beyond 3 years.

(3) Transportation services shall have a viable program for inspecting equipment. The inspection program shall include a schedule for equipment inspection and a checklist of specific areas or items which are to be inspected. Each piece of hazardous waste handling and transportation equipment shall be inspected periodically by the owner or operator of the equipment. Records shall be maintained showing when the equipment was inspected, any problems observed during the inspection and any maintenance performed on the equipment.

(4) Equipment operators who are also engaged in activities regulated under ss. NR 113.04 to 113.06, 113.08, 113.10, 113.12 to 113.14, 204.05 to 204.13 or 502.06 shall comply with the applicable requirements of those sections.

NR 620.14 TRANSFER FACILITIES. A hazardous waste transporter, licensed in accordance with s. NR 620.15, who accumulates manifested shipments of hazardous waste in containers without a hazardous waste storage license, shall comply with the requirements of this section:

(1) The waste may not be recycled, treated, placed in a storage facility or disposed on-site.

(2) The accumulation shall be in connection with the transporting or movement of hazardous waste shipments.

(3) Within 10 days, all accumulated waste shall be shipped to a facility which meets the requirements of s. NR 615.05(3)(a)2., except it may not be shipped to another transfer facility in Wisconsin.

(4) The notification requirements of s. NR 600.05 shall be met for each transfer facility.

(5) The accumulation shall be in compliance with the following container storage requirements:

(a) The transporter shall comply with the packaging, labeling, marking and placarding requirements of s. NR 615.09.

(b) The transporter shall inspect all containers used for storing hazardous waste at least weekly for evidence of leakage, corrosion or deterioration of the containers or discharge confinement structures, such as dikes.

(c) The transporter shall record the inspection under par. (b) in an inspection log or summary. These records shall be placed in the operating record required under sub. (8) and kept for at least 3 years from the date of the inspection. At a minimum, these records shall include the date and the time of inspection, the name of the inspector, a notation of the observation made, and the date and name of any repairs or other remedial actions. The inspection program under this paragraph and par. (b) shall be included in the inspection program under s. NR 620.13(3).

(d) If a container is not in good condition or if the contents of the storage container begin to leak, the hazardous waste in the container shall be recontainerized in a storage container in good condition.

(e) A container holding hazardous waste shall always be closed during storage.

(f) A container holding hazardous waste may not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

(g) Containers holding ignitable or reactive waste shall be located at least 50 feet from the transfer facility's property line.

(h) Storage containers holding hazardous waste which is incompatible with any waste or other materials stored nearby in other containers, waste piles, open tanks or surface impoundments shall be separated from them by means of a dike, berm, wall or other device.

(i) No wastes may be mixed, combined or recontainerized except as required by par. (d).

(j) The container shall be made or lined with materials which will not react with, and are otherwise compatible with the hazardous waste to be stored.

(6) The date upon which each period of accumulation begins shall be clearly marked and visible for inspection on each container.

(7) The transporter shall comply with the contingency plan and emergency procedures in ss. NR 630.21 and 630.22 and personnel training requirements in s. NR 630.16. The training program under this subsection shall be included in the training program under s. NR 620.13.

(8) The transporter shall comply with the recordkeeping, operating record and reporting requirements in ss. NR 630.31 and 630.40, except for the requirements in s. NR 630.31(1)(f), (g), (h) and (i).

(9) The identity and location of all stored hazardous waste shall be known throughout the entire accumulation period.

(10) Signs shall be posted at each entrance to the transfer facility indicating that only authorized personnel are allowed, and that entry can be dangerous. The transporter shall prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock into the transfer facility.

(11) The waste accumulated under this section shall be kept separate from any waste accumulated under any other provision of chs. NR 600 to 685 and shall be clearly delineated and marked as a segregated storage area.

(12) The facility shall be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion or any discharge of hazardous waste or hazardous waste constituents to the environment which could be harmful to human health or the environment. The transporter shall comply with the hazardous waste discharge requirements of s. NR 620.10 with respect to the accumulation of hazardous waste.

(13) As provided in s. NR 600.07, the department may require the owner or operator of a transfer facility to comply with all or part of the requirements of s. NR 600.04 and chs. NR 630 to 685, if the department determines that there is a potential for discharge of the hazardous waste or hazardous constituents or determines that a discharge has occurred at the transfer facility.

(14) A transporter who accumulates manifested shipments of hazardous waste in containers without a hazardous waste storage license and who does not meet the requirements of subs. (1) to (13) is an operator of a hazardous waste storage facility and is subject to the storage facility requirements in ch. NR 630 and the licensing requirements for storage facilities in ch. NR 680.

NR 620.15 HAZARDOUS WASTE TRANSPORTATION SERVICE LICENSE. (1)(a) An application for a transportation service license shall be submitted on forms supplied by the department and shall be accompanied by the fee specified in s. NR 680.45.

Note: These forms may be obtained at no charge from the Department of Natural Resources. Out of state facilities may contact the department at P.O. Box 8094, Madison, WI 53708-8094. In state facilities should contact the department district offices.

(b) Each location at which a person transporting hazardous waste bases transport vehicles, such as one generation site at which transport vehicles are based which transport hazardous wastes to or from other generation sites owned by the same person, or a centralized transport vehicle terminal, shall be licensed as a separate transportation service. An application form and fee for each separate transportation service shall be submitted to the district office of the department in the district where the transportation service is located. A person who transports hazardous waste into or through Wisconsin, but whose operation is based out-of-state, shall submit an application form and fee for a transportation service license in the district where the hazardous waste transportation activity is concentrated.

(c) The department shall notify the applicant that the application for a hazardous waste transportation service license has been approved or denied within 65 business days after the application is received by the department.

(2)(a) All license applications shall be signed as follows, by both the operator and the owner where a facility is operated by one person and owned by another:

1. For a corporation, by a responsible corporate officer. For the purpose of this subdivision a responsible corporate officer means:

a. A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation;
or

b. The manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million, in second-quarter 1980 dollars, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: The department does not require specific assignments or delegations of authority to responsible corporate officers identified in subpar. a. The department shall presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the department to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under subpar. b. rather than to specific individuals.

2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

3. For a municipality, state, federal or other public agency, by either a principal executive officer or ranking elected official. For the purposes of this subdivision, a principal executive officer of a federal agency includes:

a. The chief executive officer of the agency; or

b. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

(b) All reports required by the department, other than manifests, shall be signed by a person designated in par. (a), or by a duly authorized representative of the person if:

1. The authorization is made in writing by the person designated under par. (a);

2. The authorization specifies an individual or position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent or position of equivalent responsibility; and

3. The written authorization is submitted to the department.

(c) If an authorization under par. (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of par. (b) shall be submitted to the department prior to or together with any reports to be signed by an authorized representative.

(d) Any person signing a hazardous waste transportation service license application form under sub. (1)(a) shall make the following certification: "I hereby certify that the above information and attachments are accurate and complete."

(3)(a) The issuance of a license does not authorize any injury to persons or private property, any invasion of other private rights, or any infringement of federal, state or local law.

(b) Compliance with a license during its term constitutes compliance with ss. 144.60 to 144.74, Stats. However, a license may be revoked during its term or its renewal may be denied for any of the reasons in s. NR 620.15(4) or 680.43(1), (2) and (3). A license or a plan approval may be modified for cause, as in s. NR 680.07(3).

(c) Whenever rights of ownership, possession or operation in a licensed hazardous waste transportation service are transferred, licensing shall be in accordance with s. 144.444, Stats. Written documentation of the acquisition of rights and a written agreement containing a specific date of transfer of responsibility shall be

submitted to the department. If a transfer of license application form is not available from the department, the new owner or operator shall submit an application for an transportation service license, on a form available from the department. Transfer of responsibility requests shall be submitted as a request to modify a license or plan approval under s. NR 680.07(5)(a). The previous owner shall be responsible for compliance with the requirements specified in ss. NR 600.05 and ch. NR 620 until the person acquiring the rights of ownership, possession or operation has demonstrated compliance with the requirements specified in ss. NR 600.05 and ch. NR 620. The person acquiring the rights of ownership, possession or operation shall demonstrate to the department compliance with the requirements in ss. NR 600.05 and ch. NR 620 within 6 months after the transfer of responsibility. The previous owner shall continue to be responsible for compliance with the requirements in ss. NR 600.05 and ch. NR 620 if the person acquiring the rights of ownership, possession or operation fails to demonstrate compliance with those requirements.

Note: These forms may be obtained at no charge from the Department of Natural Resources. Out of state facilities may contact the department at P.O. Box 8094, Madison, WI 53708-8094. In state facilities should contact the department district offices.

(4) A hazardous waste transportation service license may be revoked during its term, or its issuance or renewal may be denied for grievous and continuous failure of the equipment operator to comply with a requirement of chs. NR 600 to 685, ss. 144.60 to 144.74, Stats., any special order, plan approval or term or condition of a license or variance issued under those sections.

(5) All of the conditions applicable to a license shall be incorporated into the license either expressly or by reference. The following conditions shall apply to all licenses:

(a) The licensee shall comply with all conditions of the license, the provisions of ch. 144, Stats., the applicable requirements of chs. NR 600 to 685, any special order and modifications thereof issued by the department, except as otherwise authorized by the department under s. NR 600.09, 680.50 or 680.51.

(b) If a licensee wishes to continue an activity regulated by a license after the expiration date of the license, the licensee shall apply for a new license.

Note: Expiration of an existing license while the department is considering an application for renewal is covered in s. 227.51(2), Stats.

(c) It is not a defense for a licensee in an enforcement action that it would have been necessary to halt or reduce the licensed activity in order to maintain compliance with the conditions of the license.

(d) All renewal applications, and all reports or other information submitted to the department by the licensee shall be signed and certified as specified in sub. (2).

(e) The licensee shall at all times maintain in good working order and operate efficiently all facilities, systems and related appurtenances which are installed or used by the licensee to achieve compliance with the terms and conditions of the license. Proper operation and maintenance includes, but is not limited to, effective performance based on equipment design, adequate funding, effective management and adequate operator staffing and training.

(f) The licensee shall, upon the request of any officer or employe of the department, allow departmental personnel, at reasonable times and with notice no later than upon arrival, to:

1. Enter the licensee's premises where a regulated facility or activity is located or conducted or where hazardous waste records are kept;

2. Have access to, and copy at reasonable times, records or labels that are being kept;

3. Inspect at reasonable times any facility's equipment, including monitoring equipment, or operations regulated under the license; and

4. Sample or monitor any substance or parameters at any location where a regulated facility or activity is located or conducted, in compliance with the requirements of s. 144.69, Stats.

(g) The licensee shall report to the department any noncompliance which may endanger human health or the environment. The information which is required to be included in a written report under this paragraph shall be provided orally to the appropriate district office of the department within 24 hours from the time the licensee becomes aware of the circumstances. A written report shall be submitted within 5 days of the time the licensee becomes aware of the circumstances. The department may allow the licensee up to 15 days to submit a written report if an extension is requested by the licensee. The written report shall contain:

1. Name, address and telephone number of the owner or operator;

2. Name, address and telephone number of the facility;

3. A description of the noncompliance and the period of noncompliance, including exact date and time, and if the noncompliance has not been corrected, the anticipated time the noncompliance is expected to continue.

4. Name and quantity of material involved;

5. The extent of injuries, if any;

6. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable, including information concerning the release of any substance which may cause contamination of a drinking water supply;

7. Estimated quantity and disposition of recovered material that resulted from the incident;

8. The known or suspected causes of the noncompliance and a statement describing the measures taken to investigate the noncompliance to determine its cause; and

9. Steps taken, or planned, to reduce or eliminate and prevent recurrence of the noncompliance.

(h) The licensee shall notify the division of emergency government and comply with the requirements of s. NR 630.22(2), s. 144.76, Stats., and ch. NR 158 if a discharge of hazardous waste or hazardous substance, or a fire or explosion occurs at the licensed facility.

(i) In the event of noncompliance with the license, the licensee shall take all necessary steps to minimize discharges to the environment, and shall take all necessary steps to minimize any adverse impacts on human health or the environment.

(j) Reports of compliance with, and any progress on, interim and final requirements contained in any compliance schedule under the license shall be submitted no later than 14 days following each schedule date.

(k) The licensee shall furnish information needed to determine whether cause exists to modify, revoke or to determine compliance with the license. The licensee shall also furnish to the department, upon request, copies of records required by the license.

(l) The license does not convey any property rights of any sort, or any exclusive privilege.

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(m) The licensee shall submit required documentation and take any action necessary to ensure protection of human health and the environment. The department may require the documentation or action after inspecting the facility or reviewing any submittals, reports or plans.

(n) The license may be modified or revoked for the reasons outlined in s. NR 620.15(4), 680.07 or 680.43. The submittal of a request by the licensee for license modification or termination, or a notification of planned changes or anticipated noncompliance, does not stay the effectiveness of any license condition.

(o) Where the licensee becomes aware that there was a failure to submit relevant facts in any reports, plans or other information submittal, or that incorrect information was submitted, the licensee shall promptly submit the facts or information to the department.

(p) In addition to the conditions required for all licenses, the department may establish conditions, as required on a case-by-case basis, to ensure compliance with all applicable requirements of chs. NR 600 to 685.

NR 625 - RECYCLING STANDARDS

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NR 625.01 PURPOSE. The purpose of this chapter is to specify the requirements that apply to the recycling of hazardous waste.

NR 625.02 APPLICABILITY. This chapter applies to hazardous waste recycling facilities. This chapter does not apply to solid waste recycling facilities that recycle only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 625.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 625.04 GENERAL. (1) Except as provided in s. NR 625.05, the owner or operator of a hazardous waste recycling facility that meets the requirements of this chapter may be exempted from all of the requirements of s. NR 600.04 and chs. NR 630 to 685, except ch. NR 680, except those requirements specifically made applicable in this chapter, in one of 2 ways:

(a) The owner or operator of a recycling facility that meets the requirements of s. NR 625.06 is exempt from regulation under s. NR 600.04 and chs. NR 630 to 685 and is not required to apply for a written exemption under this chapter.

(b) The owner or operator of a recycling facility that is not exempt under s. NR 625.06 may apply to the department for a written exemption from regulation under s. NR 600.04 and chs. NR 630 to 685. The following provisions apply to the owner or operator of a recycling facility who applies for a written exemption from the requirements of s. NR 600.04 and chs. NR 630 to 685 under s. NR 625.07, 625.08 or 625.09:

1. The owner or operator of a recycling facility who obtained an operating license, interim license, variance or waiver for the recycling activities prior to July 1, 1985 may continue to operate the recycling facility under the terms and conditions of the applicable approval, or may request an exemption under this chapter to replace that approval.

2. The owner or operator of a recycling facility in existence on July 1, 1985 who did not obtain an operating license, interim license, variance or waiver shall terminate the hazardous waste recycling activity and decontaminate or remove all hazardous waste and hazardous waste residues, regardless of whether the facility was exempt from regulation under this section as it existed prior to July 1, 1985. Receipt of a request for an exemption under this section by the department by December 28, 1985, shall allow a facility to continue to operate until the exemption request is approved or denied by the department, provided that the owner or operator complies with the following requirements. Exemptions apply only to the actual recycling activity and not to other hazardous waste management activities.

a. The security requirements specified in s. NR 630.14.

b. The inspection requirements specified in s. NR 630.15.

c. Operation requirements specified in s. NR 630.17(2).

d. Recordkeeping and reporting requirements specified in s. NR 630.31 and 630.40.

e. The hazardous waste discharge reporting requirements specified in s. NR 630.22(2)(c).

f. The operational requirements specified in s. NR 665.09, if the facility is an incinerator burning only hazardous waste for the primary purpose of heat recovery.

3. The owner or operator of a proposed recycling facility may request an exemption under this section from certain requirements of s. NR 600.04 and chs. NR 630 to 685 for the proposed recycling activities. The owner or operator of a proposed recycling facility may not construct or operate the facility until the department approves the exemption request in writing.

(2) The department shall advise the applicant in writing of the receipt and approval or disapproval of any exemption request. Disapproval of an exemption request shall require the owner or operator to terminate the existing hazardous waste recycling activity and decontaminate or remove all hazardous waste and hazardous waste residues, unless the facility may be operated under an existing department approval under par. (b). The department shall advise the applicant, in writing within 65 business days after receipt of the exemption request, whether the exemption request is complete or incomplete. Failure to provide a complete exemption request within 65 business days after the date of the written advisory that the request is incomplete may be a basis for denial of the request. The department may extend the period to provide a complete exemption request if the applicant can show that the extension is necessary to develop the required information to complete the request. The department shall advise the applicant of the approval or disapproval of the exemption request within 65 business days after finding the request complete.

(3)(a) The department shall make a determination of an exemption request based on the following criteria:

1. The types of wastes to be recycled and their associated hazards.

2. The likelihood of a discharge of hazardous waste or hazardous constituents from the normal operations of the recycling activity and the associated impact on public health and safety or the environment.

3. Whether the exemption would promote improved methods of managing hazardous waste.

(b) The department shall grant an exemption to all recycling facilities which meet the requirements of this chapter unless the department determines that the recycling will present a significant hazard to public health and safety or the environment, which may not be eliminated or mitigated by appropriate procedures or controls.

(4) Any recycling exemption applies only to the actual recycling activity, and not to other hazardous waste management activities. Applicable generator, transporter, storage, treatment and disposal requirements shall be complied with unless the activity is specifically exempted elsewhere in chs. NR 600 to 685.

Note: Any hazardous waste generated by a recycling activity is regulated under chs. NR 600 to 685. For example, wastes generated from the processing of waste lead-acid batteries, such as acid, lead plates and battery cases shall be properly managed at an approved hazardous waste facility.

(5) Hazardous waste recycling units shall be constructed of sturdy, leakproof materials and shall be designed, constructed and operated so as to prevent hazardous waste from being discharged during the unit's operating life.

(6) Upon termination of a recycling activity regulated under this section, the owner or operator shall remove all hazardous waste and hazardous waste residues from the recycling units and terminate the hazardous waste recycling activity and decontaminate or remove any other hazardous waste or hazardous waste residues.

Note: Any hazardous waste recycling activity regulated under this section may be terminated by modifying the recycling activity so as to cease recycling hazardous waste, but continuing to recycle nonhazardous solid waste.

NR 625.05 INELIGIBLE ACTIVITIES. The following types of activities are not eligible for an exemption under this chapter:

(1) Recycling that constitutes disposal.

(2) Except as provided in s. NR 625.07, the burning of hazardous waste in incinerators. Notwithstanding s. NR 625.07, the burning of hazardous waste in cement kilns located within the boundaries of incorporated municipalities with a population greater than 500,000, using the latest census data, is not eligible for an exemption under this section.

(3) Recycling in surface impoundments.

(4) Recycling in waste piles.

(5) Recycling in land treatment units.

NR 625.06 LEGITIMATE RECOVERY OR RECLAMATION. The legitimate recovery or reclamation of hazardous waste is exempt from regulation under s. NR 600.04 and chs. NR 630 to 685, except for:

Note: Certain units that perform recovery or reclamation may be exempt from regulation under s. NR 600.04 and chs. NR 630 to 685 if they meet the definition of a totally enclosed treatment facility. An example of such a unit is an enclosed still which is directly connected to a process that produces waste for recovery in the still.

(1) The security requirements in s. NR 630.14.

(2) The contingency plan and emergency procedures requirements in ss. NR 630.21 and 630.22. These requirements do not apply to any generator who recycles only waste generated on-site and who generates and accumulates hazardous waste in quantities less than those specified in ch. NR 610.

(3) The personnel training requirements in s. NR 630.16(1) and (2). These requirements do not apply to any generator who recycles only waste generated on-site and who generates and accumulates hazardous waste in quantities less than those specified in ch. NR 610.

(4) The manifest, recordkeeping and reporting requirements in ss. NR 630.30, 630.31 and 630.40.

(5) The general inspection requirements in s. NR 630.15.

(6) The hazardous waste discharge reporting requirements specified in s. NR 630.22(2)(c).

(7) The notification requirements in s. NR 600.05.

(8) The operational requirements specified in s. NR 630.17(2).

(9) If the facility is accepting waste from off-site for recycling, the following additional requirements:

(a) The general waste analysis requirements in s. NR 630.12.

(b) The waste analysis plan requirements in s. NR 630.13(1).

(c) The applicable storage requirements in chs. NR 640, 645, 655 and 670.

(10) The requirements of s. NR 625.04(4), (5) and (6).

(11) Any other requirements as ordered, and determined to be necessary, by the department to protect public health and safety or the environment.

NR 625.07 HAZARDOUS WASTE BURNED FOR ENERGY RECOVERY. (1) GENERAL. The requirements of this section apply to owners and operators of facilities that burn hazardous waste in boilers or industrial furnaces not regulated under ch. NR 665, except as provided in sub. (2), for energy recovery; and to those who produce, process, blend or distribute hazardous waste fuel for burning. This section does not apply to gas recovered from hazardous waste management activities when the gas is burned for energy recovery.

(2) EXCEPTIONS. This section does not apply to the following hazardous wastes:

(a) Used oil burned for energy recovery which is also a hazardous waste solely because it exhibits the characteristic of hazardous waste EP toxicity identified in s. NR 605.08, is subject to regulation under 40 CFR 266, Subpart E, rather than this section.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(b) Hazardous wastes that are exempt from regulation under s. NR 605.05.

(c) Hazardous wastes that are subject to the very small quantity generator requirements under s. NR 610.07.

(3) PROHIBITIONS. (a) A person may not market hazardous waste fuel except;

1. To persons who have notified the department and EPA of their hazardous waste fuel activity and have an EPA identification number; and

2. If the fuel is burned, to persons who burn the fuel in boilers or industrial furnaces.

(b) Hazardous waste fuel may not be burned for energy recovery except in the following devices:

1. Industrial furnaces.

2. The following boilers:

a. Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes; or

b. Utility boilers used to produce electric power, steam, or heated or cooled air or other gases or fluids for sale.

(c) No fuel which contains any hazardous waste may be burned in any cement kiln which is located within the boundaries of any incorporated municipality with a population greater than 500,000, based on the most recent census statistics, unless the kiln fully complies with all regulations under ch. NR 665.

(4) STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE FUEL.

(a) Generators of hazardous waste that is used as a fuel or used to produce a fuel are subject to the applicable regulations under chs. NR 610 and NR 615.

(b) Generators who market hazardous waste fuel to a burner are also subject to the requirements of sub. (6).

(c) Generators who are burners are also subject to the requirements of sub. (7).

(5) STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE FUEL.

(a) Transporters of hazardous waste fuel, and hazardous waste that is used to produce fuel, are subject to the requirements of ch. NR 620.

(6) STANDARDS APPLICABLE TO MARKETERS OF HAZARDOUS WASTE FUEL. Persons who market hazardous waste fuel are termed "marketers". Marketers include generators who market hazardous waste fuel directly to a burner, persons who receive hazardous waste from generators and produce, process or blend hazardous waste fuel from these hazardous wastes, and persons who distribute but do not process or blend hazardous waste fuel. Marketers are subject to the following requirements:

(a) Prohibitions. The prohibitions under sub. (3) apply.

(b) Notification of hazardous waste fuel activities. Even if a marketer has previously notified EPA of its hazardous waste management activities and obtained an EPA identification number, they shall renotify to identify their hazardous waste fuel activities.

(c) Storage. The applicable provisions of s. NR 615.05(4) and chs. NR 630, 640, 645, 660 and 670.

(d) Off-site shipment. When the marketer initiates a shipment of hazardous waste fuel, the applicable standards for generators in chs. NR 610 and 615.

(e) Required notices. 1. Before a marketer initiates the first shipment of hazardous waste fuel to a burner or another marketer, the marketer shall obtain a one-time written and signed notice from the burner or marketer certifying that:

a. For shipments within Wisconsin the burners or marketers have notified the department and EPA and identified their hazardous waste fuel activities or for shipments outside of Wisconsin the burners or marketers have notified EPA and identified their hazardous waste fuel activities; and

b. If the recipient is a burner, the burner will burn the hazardous waste fuel only in an industrial furnace or boiler identified in sub. (3)(b).

2. Before a marketer accepts the first shipment of hazardous waste fuel from another marketer, the first marketer shall provide the other marketer with a one-time written and signed certification that the first marketer notified the department and EPA under 42 USC 6930 and identified its hazardous waste fuel activities.

(f) Recordkeeping. In addition to the applicable recordkeeping requirements of chs. NR 610, 615, 630, 640, 645 and 675, a marketer shall keep a copy of each certification notice received or sent for 3 years from the date last engaged in a hazardous waste fuel marketing transaction with the person who sent or received the certification notice.

(7) **STANDARDS APPLICABLE TO BURNERS OF HAZARDOUS WASTE FUEL.** Hazardous waste fuel may be burned in boilers for energy recovery in boilers or industrial furnaces and be eligible for an exemption from regulation under ch. NR 665 and certain provisions of ch. Nr 630. To be considered for this exemption, the owner or operator of the facility shall submit a written request to the department in accordance with par. (a).

(a) At a minimum, the request shall be prepared in accordance with s. NR 680.05 and shall contain the following:

1. The name, address and telephone number of the owner and the operator of the facility.

2. A drawing of the recycling facility.

3. A description of the processes to be used for the recycling of hazardous waste, and how these processes meet the definition of recycling, the capacity of these processes and a description of the management of any hazardous waste residues generated from the recycling activity.

4. A description of the hazardous wastes to be recycled at the facility, including the hazardous waste numbers, and an estimate of the quantities of each waste to be recycled annually.

5. A description of how compliance with the requirements of par. (b) will be accomplished, including a copy of the facility's contingency plan as required under ss. NR 630.21 and 630.22 and a description of how the facility will close in accordance with s. NR 625.04(6). These descriptions are not required for facilities which burn hazardous waste for energy recovery in a boiler or industrial furnace in amounts less than 1,000 kilograms per month, if the hazardous waste burned exhibits only the characteristic of ignitability, and no other characteristic listed in s. NR 605.08(1) to (5), or is listed under s. NR 605.09 solely because it exhibits the characteristic of ignitability.

6. The signature of the owner or operator as specified in s. NR 680.05.

(b) Exemptions for burning hazardous waste in boilers and in industrial furnaces for energy recovery shall be issued in writing by the department.

(c) The owner or operator of an exempt facility shall meet the following requirements:

1. The security requirements in s. NR 630.14.

2. The contingency plan and emergency procedures requirements in ss. NR 630.21 and 630.22.

3. The personnel training requirements in s. NR 630.16(1) and (2).

4. The manifest, recordkeeping and reporting requirements in ss. NR 630.30, 630.31 and 630.40.

5. The general inspection requirements in s. NR 630.15.

6. The hazardous waste discharge reporting requirements specified in s. NR 630.22(2)(c).

7. The operational requirements specified in s. NR 630.17(2).

8. The notification requirements specified in s. NR 600.05. Even if a burner has previously notified EPA and the department of hazardous waste management activities and obtained an EPA identification number, the burner shall renotify to identify the hazardous waste fuel activities.

9. The requirements of s. NR 625.04(4), (5) and (6).

10. If the facility is accepting waste from off-site for recycling, the following additional requirements apply:

a. The general waste analysis requirements in s. NR 630.12.

b. The waste analysis plan requirements in s. NR 630.13.

c. The applicable storage requirements in chs. NR 640, 645, 655 and 670.

11. Required notices. Before a burner accepts the first shipment of hazardous waste fuel from a marketer, the burner shall provide the marketer a one-time written and signed notice certifying that:

a. The burner has notified the department and EPA and identified its hazardous waste fuel activities and

b. The fuel will be burned only in a boiler or industrial furnace identified in s. NR 600.03(19) and (105), and in sub. (3)(b).

12. In addition to the recordkeeping requirements indicated in subd. 4, a burner shall keep a copy of each certification notice sent to a marketer for 3 years from the date that hazardous waste fuel was last received from the marketer.

13. Generators who accumulate hazardous waste fuel prior to burning on site shall comply with the additional requirements of chs. NR 610 and 615.

14. Other requirements as specified, and determined to be necessary, by the department to protect public health, safety or the environment.

NR 625.08 BENEFICIAL USE OR REUSE. Beneficial use or reuse of a hazardous waste may be exempted from regulation under s. NR 600.04 and chs. NR 630 to 685. To be considered for this exemption, the owner or operator of the facility shall submit a written request to the department in accordance with s. NR 625.04(1)(b).

(1) At a minimum the request shall be prepared in accordance with s. NR 680.05 and shall contain the following:

(a) The name, address and telephone number of the owner and the operator of the facility where the waste will be used or reused.

(b) A description of how the hazardous wastes will be used or reused, including any processes for treatment of the hazardous wastes prior to use or reuse.

(c) A description of the hazardous wastes to be used or reused at the facility, including the hazardous waste numbers, and an estimate of the quantities of each of waste to be recycled annually.

(d) A description of the management of any hazardous waste residues generated from the recycling activity.

(e) A description of how the requirements of sub. (2) will be complied with, including a copy of the facility's contingency plan and emergency procedures as required under ss. NR 630.21 and 630.22 and a description of how the facility will close in accordance with s. NR 625.04(6).

(f) The signature of the owner or operator as specified in s. NR 680.05.

(2) The owner or operator of an exempt facility shall meet the following requirements:

(a) The security requirements in s. NR 630.14.

(b) The contingency plan and emergency procedure requirements in ss. NR 630.21 and 630.22.

(c) The personnel training requirements in s. NR 630.16(1) and (2).

(d) The manifest, recordkeeping and reporting requirements in ss. NR 630.30, 630.31 and 630.40.

(e) The general inspection requirements in s. NR 630.15.

(f) The hazardous waste discharge reporting requirements specified in s. NR 630.22(2)(c).

(g) The operational requirements specified in s. NR 630.17(2).

(h) The notification requirements in s. NR 600.05.

(i) The requirements of s. NR 625.04(4), (5) and (6).

(j) If the facility is accepting waste from off-site for recycling, the following additional requirements apply:

1. The general waste analysis requirements in s. NR 630.12.

2. The waste analysis plan requirements in s. NR 630.13.

3. The applicable storage requirements in ch. NR 680.

(k) Other requirements as specified, and determined to be necessary, by the department to protect public health and safety or the environment.

(3) Exemptions for using or reusing hazardous waste shall be issued in writing, by the department.

NR 625.09 OTHER ACTIVITIES. Other recycling activities not specifically eligible for an exemption under ss. NR 625.06, 625.07 and 625.08 may also be exempted by the department from certain requirements of s. NR 600.04 and chs. NR 630 to 685. Owners or operators of the recycling facilities shall make a request to the department, in writing, for an exemption. The request shall be made in accordance with s. NR 625.04(1)(b) and shall contain the minimum information specified in s. NR 625.07(7)(a).

NR 625.10 SPECIAL REQUIREMENTS. The department may require the owner or operator of any recycling facility which is otherwise exempt under this chapter to comply with all or part of the requirements of s. NR 600.04 and chs. NR 630 to 685, under s. NR 600.07, where compliance with the requirements is necessary to protect public health, safety or the environment.

NR 625.11 REVOCATION. An exemption under this chapter may be revoked by the department if the owner or operator of the recycling facility fails to comply with any of the applicable requirements of this chapter or any term or condition of the exemption.

NR 625.12 WASTE LEAD-ACID BATTERIES DESTINED FOR RECYCLING. (1) GENERAL. (a) Persons who generate, transport or store waste lead-acid batteries destined for recycling but do not recycle them are not subject to regulation under chs. NR 600 to 685, except as provided in this section:

(b)1. The waste lead-acid batteries are managed to prevent breakage, spills or discharges to the environment; and

2. Any waste generated during the management of waste lead-acid batteries is managed in accordance with chs. NR 600 to 685. The waste is not subject to the exemption from regulation in this subsection.

(2) STORAGE PRIOR TO RECYCLING. Owners or operators of lead-acid battery recycling facilities storing waste lead-acid batteries at the recycling facility before recycling them are subject to the applicable requirements of chs. NR 600 to 685 for that storage, except that they are exempt from the waste analysis requirements of ss. NR 630.12 and 630.13(1), and the manifest requirements of s. NR 630.30.

(3) SPECIAL REQUIREMENTS. (a) The department may require the owner or operator of any facility managing waste lead-acid batteries which is otherwise exempt under this chapter, to comply with all or part of the requirements of s. NR 600.04 and chs. NR 630 to 685 under s. NR 600.07(1), where compliance with the requirements is necessary to protect public health, safety or the environment.

(b) The department may require any generator or transporter of waste lead-acid batteries who is otherwise exempt under this section, to comply with all or part of the requirements of chs. NR 600 to 685

under s. NR 600.07(2), where compliance with the requirements is necessary to protect public health, safety or welfare or the environment.

Note: The actual recycling of waste lead-acid batteries is regulated under ss. NR 625.01 to 625.11 and not under this section.

Note: Any hazardous waste generated by a recycling activity is regulated under chs. NR 600 to 685. For example, wastes generated from the processing of waste lead-acid batteries, such as acid, lead plates and battery cases must be properly managed at an approved hazardous waste facility.

NR 630 - STORAGE, TREATMENT AND DISPOSAL FACILITY GENERAL STANDARDS

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NR 630.01 PURPOSE. The purpose of this chapter is specify the general requirements that apply to the storage, treatment and disposal of hazardous waste.

NR 630.02 APPLICABILITY. This chapter applies to the owners and operators of storage, treatment or disposal facilities. This chapter does not apply to solid waste facilities that store, treat or dispose of only:

- (a) Non-hazardous solid waste,
- (b) metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

Note: Additional requirements for specific facilities are given in chs. NR 640 to 670.

NR 630.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 630.04 EXEMPTIONS. The requirements of this chapter do not apply to the following, except to the extent they are specifically included:

- (1) The owner or operator of a wastewater treatment unit if the owner or operator of a unit that treats waste from off-site complies with pars. (a) to (d). This exemption does not apply to the treatment, storage or disposal of sludges, residues or other hazardous waste produced during the treatment process when this material is removed from the wastewater treatment unit or when the treatment process ceases. This

exemption shall apply to the wastewater treatment units which treat waste from off-site if the owner or operator complies with the following requirements:

- (a) The notification requirements specified in s. NR 630.10.
- (b) The manifest system requirements specified in s. NR 630.30;
- (c) The recordkeeping requirements specified in s. NR 630.31(1)(a) and (b); and
- (d) The reporting requirements specified in s. NR 630.40(1) and (2).

(2) The owner or operator of a POTW which accepts hazardous waste for treatment or recycling, if the owner or operator complies with par. (a) to (f). This exemption does not apply to the treatment, storage or disposal of sludges, residues or other hazardous waste produced during the treatment process when the material is removed from the POTW treatment units or when the treatment process ceases. To be exempt under this subsection, the owner or operator shall:

- (a) Have a WPDES permit;
- (b) Comply with the conditions of that permit;

(c) Comply with the notification requirements specified in s. NR 630.11, the manifest system requirements specified in s. NR 630.30, the recordkeeping requirements specified in s. NR 630.31(1)(a) and (b), the reporting requirements specified in s. NR 630.40(1) and (2); and

(d) Except for spent pickle liquor that is accepted for recycling, meet all federal, state and local pretreatment requirements which would be applicable to the waste if it were discharged into the POTW through a sewer, pipe or similar conveyance.

(e) Except as provided in par. (f), if a hazardous waste is stored prior to treatment or recycling, the storage shall be in a wastewater treatment unit as specified in sub. (1) or in a storage facility which has received an operating license, interim license, variance or waiver.

(f) If spent pickle liquor is stored prior to recycling, the storage shall be in accordance with par. (e), or shall be in a tank which is approved under s. 144.04, Stats.

(g) If the WPDES permit was issued after November 8, 1984, the POTW shall comply with the corrective action requirements of s. NR 635.15.

(3) The owner or operator of a surface impoundment which has its discharges regulated under ch. 147, Stats., which accepts hazardous waste for treatment, if the owner or operator complies with pars. (a) to (c). This exemption does not apply to the treatment, storage or disposal of sludges, residues or other hazardous waste produced during the treatment process when this material is removed from the impoundment or impoundments or when the treatment process ceases. To be exempt under this subsection, the owner or operator shall:

(a) Have a WPDES permit for the discharge from the impoundment or have the discharge from the impoundment conveyed to a POTW directly through a sewer or pipe or similar conveyance;

(b) Comply with the conditions of the WPDES permit or all the federal, state and local pretreatment requirements which are applicable for direct discharges to a POTW; and

- (c) Comply with all the requirements of s. NR 660.19.

(4) A generator accumulating waste on-site in containers or above-ground tanks, in compliance with s. NR 615.05(4), except to the extent that the requirements of s. NR 600.04 and chs. NR 630 to 685 are made applicable in s. NR 615.05(4).

(5) The owner or operator of a totally enclosed treatment facility.

(6) The owner or operator of a recycling facility, if the owner or operator complies with the requirements specified in ch. NR 625.

(7) The owner or operator of an elementary neutralization unit, if the owner or operator of the elementary neutralization unit complies with the following requirements:

(a) Obtains an identification number as specified in s. NR 630.11.

(b) The security requirements specified in s. NR 630.14(1).

(c) The inspection requirements specified in s. NR 630.15.

(d) Operation requirements as specified in s. NR 630.17(2).

(e) Manifest, recordkeeping and reporting requirements specified in ss. NR 630.30, 630.31 and 630.40.

(f) The hazardous waste discharge reporting requirement specified in s. NR 630.22(2)(c).

(g) At closure, the owner or operator of an elementary neutralization unit shall remove all hazardous waste and hazardous waste residue from the unit and comply with the applicable requirements of chs. NR 600 to 685 for this waste.

(h) Any sludges, residues or other hazardous waste produced during the neutralization process are subject to the applicable requirements of chs. NR 600 to 685 when this material is removed from the elementary neutralization unit or when the neutralization process ceases.

(i) The elementary neutralization unit shall be constructed of sturdy, leakproof material and shall be designed, constructed and operated so as to prevent hazardous waste from being discharged during the operating life of the unit.

(8) The owner or operator of a facility operating under an interim license except to the extent that the requirements are listed in ss. NR 680.21(4) and (5) and 680.22.

(9) A small quantity generator accumulating waste on-site in compliance with s. NR 610.08.

(10) A very small quantity generator accumulating waste on-site in compliance with s. NR 610.07.

(11) A generator who combines absorbent material with a waste generated on-site in a container for the purpose of eliminating free liquids, if the generator complies with s. NR 615.05(6).

(12) A generator accumulating waste on-site in underground tanks used for spill or leak containment, if the generator complies with s. NR 615.05(5).

(13) A person who stores waste lead-acid batteries that are destined for recycling and who complies with s. NR 625.12.

(14) A licensed transporter accumulating manifested shipments of waste at a transfer facility in compliance with s. NR 620.14.

(15) The owner or operator of a solid waste disposal facility licensed under chs. NR 500 to 522, if the only hazardous waste the facility stores is excluded from regulation under s. NR 600.04 and chs. NR 630 to 685 by s. NR 610.05(1) and the facility has been approved under s. NR 506.15 to accept small quantities of hazardous waste.

NR 630.05 ENVIRONMENTAL AND HEALTH STANDARDS. (1) **GROUNDWATER, HUMAN HEALTH AND ENVIRONMENTAL STANDARDS.** A hazardous waste facility may not be located, designed, constructed or operated in a manner that the department after investigation or review finds that there is a reasonable probability that management of hazardous waste within the area will have a detrimental effect on groundwater quality or will cause a violation of groundwater standards under ch. NR 140.

(2) **SURFACE WATER, HUMAN HEALTH AND ENVIRONMENTAL STANDARD.** A hazardous waste facility may not be located, designed, constructed or operated in a manner allowing any surface or subsurface discharge from the facility into navigable waters to cause a violation of water quality standards established in chs. NR 102 to 104, or a violation of s. 144.76, Stats., nor in a manner that the department after investigation or review finds that there is a reasonable probability that the management of hazardous waste within the an area will have a detrimental effect on surface water quality.

(3) **AIR, HUMAN HEALTH AND ENVIRONMENTAL STANDARD.** A hazardous waste facility shall be located, designed, constructed and operated in a manner preventing air emissions from the facility from causing a violation of standards or regulations in chs. NR 400 to 499.

NR 630.10 REQUIRED NOTICES. (1) The owner or operator of a hazardous waste facility that has arranged to receive hazardous waste from a foreign source shall notify the department in writing at least 4 weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.

(2) Before transferring ownership or operation of a hazardous waste facility during its operating life, or of a disposal facility during the long-term care period, the owner or operator shall notify the new owner or operator in writing of the requirements of ss. NR 600.04 and 620.15 and chs. NR 630 to 685.

Note: An owner or operator's failure to notify the new owner or operator of the requirements of ss. NR 600.04 and 620.15 and chs. NR 630 to 685 in no way relieves the new owner or operator of obligation to comply with all applicable requirements.

(3) The owner or operator of a hazardous waste facility that receives hazardous waste from an off-site source, except where the owner or operator is also the generator, shall inform the generator in writing that the hazardous waste facility has the appropriate license for, and will accept, the waste the generator is shipping. The owner or operator shall keep a copy of this written notice as part of the operating record.

NR 630.11 IDENTIFICATION NUMBERS. A facility owner or operator who does not have an identification number shall obtain one by applying to the department using the notification form specified in s. NR 600.05. The identification number shall be included on the manifest and hazardous waste summary report.

NR 630.12 GENERAL WASTE ANALYSIS. (1) Before an owner or operator treats, stores or disposes of any hazardous waste, a detailed chemical and physical analysis of a representative sample of the waste shall be obtained from the generator. At a minimum, this analysis shall contain all the information which must be known in order to treat, store or dispose of the waste in accordance with the requirements of chs. NR 600 to 685 or the conditions of an interim license, variance or approved plan of operation.

(2) The analysis may include data developed under chs. NR 605, 610 and 625 and existing published or documented data on the hazardous waste or on waste generated from similar processes.

(3) The analysis shall be repeated as necessary to ensure that it is accurate and up to date. At a minimum, the analysis shall be repeated:

(a) When the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous waste has changed; and

(b) For off-site facilities, when the results of the inspection required in sub. (4) indicate that the hazardous waste shipment received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

(4) The owner or operator of an off-site facility shall inspect and if necessary, analyze in accordance with the waste analysis plan required by s. NR 630.13, each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

NR 630.13 WASTE ANALYSIS PLAN. (1) **WASTE ANALYSIS PLAN.** The owner or operator shall develop and follow a written waste analysis plan which describes the procedures which will be carried out to comply with s. NR 630.12. The owner or operator shall keep this plan at the facility. At a minimum, the plan shall specify:

(a) The parameters for which each hazardous waste shall be analyzed and the rationale for the selection of these parameters, and why analysis for these parameters will provide sufficient information on the waste's properties to comply with s. NR 630.12;

(b) The test methods which will be used to test for these parameters;

(c) The sampling method which will be used to obtain a representative sample of the waste to be analyzed. A representative sample may be obtained using either:

1. One of the sampling methods described in Appendix 1 of ch. NR 605; or
2. An equivalent sampling method, approved by the department.

(d) The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date;

(e) For off-site facilities, the waste analyses that hazardous waste generators have agreed to supply; and

(f) Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in ss. NR 630.17(2), 645.06(3)(b)2., 655.09, 660.13(5) and (7), 665.09(15) and 670.11(2)(a).

(g) For off-site facilities, the waste analysis plan required in sub. (1) shall also specify the procedures which will be used to inspect and, if necessary, analyze each shipment of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan shall describe:

1. The procedures which will be used to determine the identity of each shipment of waste managed at the facility; and

2. The sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling.

(h) For surface impoundments exempted from land disposal restrictions under s. NR 675.04(1), the procedures and schedules for:

1. The sampling of impoundment contents;

2. The analysis of test data; and

3. The annual removal of residues which do not exhibit a characteristic of hazardous waste, and which do not meet the treatment standards of ss. NR 675.20 to 675.24 or, where no treatment standards have been established, the annual removal of residues which do not meet the applicable prohibition levels of ss. NR 675.10 to 675.12 or 42 USC 6924(d).

Note: The publication containing the federal regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(2) REQUIREMENTS FOR CERTIFIED OR REGISTERED LABORATORY. Chemical and physical samples shall be analyzed by a laboratory certified or registered under ch. NR 149. The following tests are excluded from this requirement:

(a) Physical tests of soil,

(b) Air quality tests,

(c) Gas tests,

(d) Field pH tests,

(e) Field conductivity,

(f) Turbidity tests,

(g) Water elevation,

(h) Temperature,

(i) Leachate-liner compatibility testing.

(3) BACTERIAL AND RADIOLOGICAL SAMPLES. Bacteriological and radiological samples shall be analyzed by the state laboratory of hygiene or at a laboratory approved or certified by the department of health and social services.

(4) OTHER FACILITIES. Other chemical and physical samples shall be analyzed by a laboratory certified or registered under ch. NR 149. The department may require, on a case-by-case basis, facilities to submit analytical test results from a laboratory that has not been certified, registered or approved by the department of health and social services.

NR 630.14 SECURITY. (1) The owner or operator shall prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility, unless the owner or operator can successfully demonstrate to the department that:

(a) Physical contact with the waste, structures or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility, and

(b) Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of s. NR 600.04 and chs. NR 630 to 685.

(2) Unless exempt under sub. (1), a facility shall have:

(a) A 24-hour surveillance system, such as television monitoring or surveillance by guards or facility personnel to continuously monitor and control entry onto the active portion of the facility; or

(b)1. An artificial or natural barrier, such as a fence in good repair or a fence combined with a cliff, surrounding the active portion of the facility, and

2. A means to control entry, at all times, through gates or other entrances to the active portion of the facility, such as an attendant, television monitor, locked entrance or controlled roadway access to the facility.

(3) Unless exempt under sub. (1), a sign with the legend, "Danger Unauthorized Personnel Keep Out", shall be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to the active portion. The legend shall be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

NR 630.15 GENERAL INSPECTION REQUIREMENTS. (1) GENERAL. The owner or operator shall inspect the facility for malfunctions and deterioration, operator errors and discharges which may be causing, or may lead to, a discharge of hazardous waste or hazardous waste constituents to the environment or a threat to human health. The owner or operator shall conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

(2) INSPECTION SCHEDULE. (a) The owner or operator shall develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment, such as dikes and sump pumps, that are important to preventing, detecting or responding to environmental or human health hazards.

(b) The schedule shall be kept at the facility.

(c) The schedule shall identify the types of problems, such as malfunctions or deterioration, which are to be looked for during the inspection.

Note: Examples of what to look for include inoperative sump pump, leaking fitting and eroding dike.

(d) The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, shall be inspected daily when in use. At a minimum, the inspection schedule shall include the items and frequencies called for in chs. NR 630, 640, 645 and 655 and ss. 660.13, 665.09 and 670.11(2)(d), where inspection requirements are specified.

(3) REMEDY. The owner or operator shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

(4) INSPECTION LOG SUMMARY. The owner or operator shall record inspections in an inspection log or summary. These records shall be kept for at least 3 years from the date of inspection. At a minimum, these records shall include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

NR 630.16 PERSONNEL TRAINING. (1) Facility personnel shall successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of s. NR 600.04 and chs. NR 630 to 685. The owner or operator shall ensure that this program includes all the elements described in the document required under sub. (4)(c).

(a) This program shall be directed by a person trained in hazardous waste management procedures, and shall include instruction which teaches facility personnel hazardous waste management procedures, including contingency plan implementation, relevant to the positions in which they are employed.

(b) At a minimum, the training program shall be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment and emergency systems, including where applicable:

1. Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment;
2. Key parameters for automatic waste feed cut-off systems;
3. Communications or alarm systems;
4. Response to fires or explosions;
5. Response to groundwater contamination incidents; and
6. Shutdown of operations.

(2) Facility personnel employed at the facility as of August 1, 1981, shall successfully complete the program required in sub. (1) by February 1, 1982. Personnel assigned to the facility or to a new position at the facility after August 1, 1981 shall successfully complete the program required in sub.(1) within 6 months

after their date of assignment to a facility or to a new position at a facility. Personnel may not work in unsupervised positions until they have completed the training requirements of sub. (1).

(3) Facility personnel shall take part in an annual review of the initial training required in sub. (1).

(4) The owner or operator shall maintain the following documents and records at the facility:

(a) The job title for each position at the facility related to hazardous waste management, and the name of the employe filling each job;

(b) A written job description for each position listed under par. (a). This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company, location or bargaining unit, but shall include the requisite skill, education or other qualifications, and duties of facility personnel assigned to each position.

(c) A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed in par. (a).

(d) Records that document that the training or job experience required under subs. (1), (2) and (3) has been given to, and completed by, facility personnel.

(5) Training records on current personnel shall be kept until closure of the facility. Training records on former employees shall be kept for at least 3 years from the date the employe last worked at the facility. Personnel training records shall accompany personnel transferred within the same company.

NR 630.17 GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE OR INCOMPATIBLE WASTES. (1)

The owner or operator shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste shall be separated and protected from sources of ignition or reaction including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition and radiant heat. While ignitable or reactive waste is being handled, the owner or operator shall confine smoking and open flame to specially designated locations. "No Smoking" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

(2) Where specifically required by s. NR 600.04 and chs. NR 610 to 699, the treatment, storage or disposal of ignitable or reactive waste, and the mixture or commingling of incompatible wastes or materials shall be conducted so that it does not:

(a) Generate extreme heat or pressure, fire or explosion or violent reaction;

(b) Produce uncontrolled toxic mists, fumes, dusts or gases in sufficient quantities to threaten human health or the environment;

(c) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

(d) Damage the structural integrity of the device or facility containing the waste; or

(e) Threaten human health or the environment.

Note: See Appendix I for examples.

(3) When required to comply with sub. (1) or (2), the owner or operator shall document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests, such as bench scale or pilot scale tests, waste analyses as specified in s. NR 630.13(1), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

NR 630.18 LOCATION STANDARDS. (1) Except as provided in s. NR 680.06(3) for facilities operating under an interim license, variance or waiver, a hazardous waste facility may not be located in a floodplain.

(2) A hazardous waste facility may not be located in a wetland.

(3) A hazardous waste facility may not be located in a habitat determined by the department to be critical to the continued existence of any endangered species listed in ch. NR 27.

(4) The department may require that active portions of a facility be located up to 200 feet away from the property line of the facility.

(5) Portions of new facilities where treatment, storage or disposal of hazardous waste will be conducted may not be located within 61 meters (200 feet) of a fault which has had displacement in Holocene time.

NR 630.20 ADDITIONAL FACILITY STANDARDS. (1) **OPEN BURNING AND DETONATION OF EXPLOSIVES.** Open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment. Detonation is an explosion in which chemical transformation passes through the material faster than the speed of sound. Owners or operators choosing to open burn or detonate waste explosives shall do so in accordance with table VII and in a manner that does not threaten human health or the environment. The department may require distances greater than the minimum distances listed in table VII be used if, based on the specific material being burned or detonated and site specific conditions, it is determined that the burning or detonation may potentially endanger human health or the environment, or create nuisance conditions.

Table VII

Minimum Distance from Open Burning or Detonation of Waste Explosives or Propellants to the Property Line of Property Owned by Other Persons

<u>Pounds of waste explosives or propellants</u>	<u>Minimum distance</u>
0 to 100	204 meters (670 feet)
101 to 1,000	380 meters (1,250 feet)
1,001 to 10,000	530 meters (1,730 feet)
10,001 to 30,000	690 meters (2,260 feet)

(2) **POINT SOURCE DISCHARGES.** All facilities with point source discharges to the waters of the state including discharges from leachate collection systems and surface water run-off collection systems, shall comply with all applicable regulations promulgated under ch. 147, Stats. Additionally, facilities with discharges to municipal sewer systems shall meet applicable pretreatment standards and have the approval of the municipal treatment system authority for that discharge.

(3) **SURFACE WATER RUN-ON AND RUN-OFF.** (a) All surface water run-on shall be diverted from active portions of a facility. At a minimum, dikes or equivalent structures shall be designed, constructed and properly maintained to divert all run-on from a 24-hour, 25-year storm.

(b) All surface water run-off from the active portions of the facility shall be collected and confined to a point source before discharge or treatment, as may be required by regulations promulgated under ch. 144 or 147, Stats. At a minimum, facilities shall be designed, constructed and operated to collect all run-off from active portions of the facility anticipated from the 24-hour, 25-year storm.

(4) **GENERATION OR REMOVAL OF WASTE.** Any person who generates or removes a hazardous waste from a hazardous waste facility shall comply with the requirements of ch. NR 615.

(5) **CLOSURE OF NONCOMPLYING PORTIONS OF FACILITIES.** Owners or operators shall close, in accordance with the requirements of s. NR 685.05, all portions of a facility which do not comply with the applicable requirements of s. NR 600.04 and chs. NR 630 to 685.

(6) **WATER QUALITY.** All owners or operators shall comply with applicable requirements of state water quality management plans approved under ch. 147, Stats.

(7) **NONPOINT SOURCE DISCHARGES.** Nonpoint source discharges from hazardous waste facilities into navigable waters may not cause or contribute to the violation of water quality standards specified in chs. NR 102 to 104.

(8) **POTENTIAL FOR DISCHARGE.** Under s. NR 600.07, an owner or operator of a storage facility may be required by the department to comply with all or part of the requirements of s. NR 600.04 and chs. NR 630 to 685, including the groundwater and leachate monitoring requirements of ch. NR 635, if the department determines that there is a potential for discharge of the hazardous waste or hazardous constituents to the environment.

NR 630.21 PREPAREDNESS AND PREVENTION. (1) Facilities shall be designed, constructed, maintained and operated to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden discharge of hazardous waste or hazardous waste constituents to the air, land or surface water which could be harmful to human health or the environment.

(2) All facilities shall be equipped with the following unless it can be demonstrated to the department by the owner or operator that none of the waste handled at the facility could require a particular kind of equipment specified below:

(a) An alarm, a telephone immediately available at the scene of operations, a 2-way radio or similar device capable of summoning emergency assistance from local police departments, fire departments or state or local emergency response teams;

(b) An internal communications system capable of providing immediate emergency instructions, voice or signal, to facility personnel;

(c) Portable fire extinguishers, fire control equipment, including special extinguishing equipment, such as that using foam, inert gas or dry chemicals, spill control equipment and decontamination equipment that is applicable to the type of hazardous waste handled at the facility; and

(d) Extinguishing agents with adequate volume and adequate delivery systems.

(3) At any time that hazardous waste is being poured, mixed, spread or otherwise handled, all employees involved in the operation shall have immediate access to an internal or external alarm or emergency communication device, either directly or through visual or voice contact with another employee unless the department has determined that a device is not required under sub. (2). If at any time during operation of the facility there is a sole employee on the premises, that person shall have immediate access to an alarm, a telephone which is immediately available at the scene of operation, a hand-held 2-way radio or a similar device capable of summoning external emergency assistance unless the department has determined that a device is not required under sub. (2).

(4) All facility communication or alarm systems, fire protection equipment, spill control equipment and decontamination equipment where required, shall be tested and maintained to ensure its proper operation in time of emergency.

(5) The owner or operator shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in an emergency, unless it can be demonstrated to the department that aisle space is not needed for any of these purposes.

(6) The owner or operator shall attempt to make service arrangements, as appropriate, for the type of waste handled at the facility and the potential need for the services. Where state or local authorities decline to participate in these arrangements, the owner or operator shall document their refusal in the operating record. These arrangements are:

(a) Familiarize police, fire departments and emergency response teams with the layout of the facility, properties of the hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility and possible evacuation routes;

(b) Where more than one police and fire department may respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(c) Agreements with state emergency response teams, emergency response contractors and equipment suppliers; and

(d) Familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions or discharges at the facility.

NR 630.22 CONTINGENCY PLAN AND EMERGENCY PROCEDURES. (1) CONTINGENCY PLAN. (a) The owner or operator of a facility shall develop a contingency plan so as to prevent or minimize human health or environmental damage in the event of fire, explosion or any unplanned sudden or nonsudden discharge of hazardous waste or hazardous waste constituents to air, land, groundwater or surface water. The provisions of the plan shall be implemented immediately in the event of a fire, explosion or discharge of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

(b) A copy of the contingency plan and all revisions of the plan shall be:

1. Kept at the facility office;

2. Sent to all local police departments, fire departments, hospitals and emergency response teams who may be called on to provide emergency services; and

3. Filed with the department.

(c) The plan shall be reviewed and immediately amended, if necessary, whenever:

1. The facility operating license, interim license, variance or waiver is amended;

2. The contingency plan fails in an emergency;

3. The facility changes in its design, construction, operation, maintenance or other circumstances in a way that materially increases the potential for fire, explosion or discharge of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

4. The list of emergency coordinators changes; or

5. The list of emergency equipment changes.

(d) At all times when the facility is in operation there shall be at least one person present with the responsibility of coordinating all emergency response measures. When the facility is not in operation, the facility emergency coordinator shall be present or on call and available to respond to an emergency by reaching the facility in a short period of time. The facility emergency coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations activities at the facility, the location and characteristics of waste handled, the location of manifests within the facility, and the facility layout. In addition, the person shall have the authority to commit the resources needed to carry out the contingency plan.

(e) The contingency plan shall, as a minimum, contain the following:

1. The name, position, address and phone number, office and home, of all persons qualified to act as facility emergency coordinator as described in par. (d), and this list shall be kept up to date. Where more than one person is listed, one shall be designated as the primary emergency coordinator and others shall be listed in the order in which they will assume responsibility as alternates. For new facilities, this information shall be supplied to the department at the time an operating license application is submitted.

2. A description of the facility layout, types of waste handled and its associated hazards, places where facility personnel would normally be working and entrances to and roads inside the facility.

3. An evacuation plan for facility personnel where necessary. This plan shall describe signals to be used to begin evacuation, evacuation routes and alternate evacuation routes.

4. Procedures for emergency shutdown of facility operations, and the actions facility personnel shall take to comply with subs. (1) and (2) in response to fires, explosions or any unplanned sudden or non-sudden discharge of hazardous waste or hazardous waste constituents to the air, land or surface water at the facility.

5. A description of the procedures that will be used to notify local police departments, fire departments, hospitals and emergency response teams of the discharge of hazardous waste, fire or explosion at the facility.

6. A current list of all emergency equipment at the facility, such as fire extinguishing equipment, spill equipment, internal and external alarms, and decontamination equipment where this equipment is required. The list shall include the location, physical description and the capabilities of each item.

7. A description of the arrangements agreed to under s. NR 630.21(6) by local police departments, fire departments, hospitals, contractors and emergency response teams to coordinate emergency services.

(f) Facility employees shall be familiarized with all emergency procedures, equipment and systems contained in the contingency plan.

(g) If the owner or operator has already prepared a spill prevention, control and countermeasures (SPCC) plan in accordance with 40 CFR Part 112, July 1, 1986, this plan need only be amended to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of s. NR 600.04 and chs. NR 630 to 685.

Note: The publication containing this regulation may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

The publication containing this regulation is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(2) EMERGENCY PROCEDURES. (a) In the event that a facility has, or there is an imminent threat that the facility may have, a discharge of hazardous waste or hazardous substance, a fire, explosion or other emergency which has the potential for damaging human health or the environment, the facility's emergency coordinator shall:

1. Activate internal facility alarms or communication systems to notify all personnel of an imminent or actual emergency situation, where applicable.

2. Telephone the division of emergency government and comply with the requirements of s. 144.76, Stats., and ch. NR 158.

Note: The division of emergency government's 24-hour number is (608) 266-3232, collect calls accepted.

3. Immediately identify the character, source, amount and areal extent of any discharged materials. This may be done by observation or review of facility records or manifests, and, if necessary, by chemical analysis.

4. Assess possible hazards to human health or the environment which may result from the discharge, fire or explosion. This assessment shall consider both direct and indirect effects of the discharge, fire or explosion such as the effects of any toxic, irritating or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat induced explosions.

5. Immediately notify appropriate authorities, if an assessment indicates that a discharge, fire or explosion could threaten human health or the environment outside the facility, and that evacuation of local areas may be advisable. The emergency coordinator shall be available to help appropriate officials decide whether local areas shall be evacuated. The emergency coordinator shall notify either the division of emergency government or the national response center. The report shall include:

- a. Name and telephone number of the person who is reporting;
- b. Name and address of the facility;
- c. Name and type of incident;
- d. Name and quantity of material or materials involved, to the extent known;

e. The extent of injuries, if any; and

f. The possible hazards to human health or the environment, outside the facility.

Note: The division of emergency government's 24-hour telephone number is (608) 266-3232. Collect calls are accepted.

Note: The national response center's toll-free telephone number is (800) 424-8802.

6. Take all reasonable measures necessary to ensure that fires, explosions and discharges do not occur, recur or spread to other hazardous waste at the facility. These measures shall include, where applicable, stopping processes and operations, collecting and containing discharge waste, and removing or isolating containers.

7. Monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment, where appropriate, if the facility stops operation in response to a fire, explosion or discharge.

8. Provide for treating, storing or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a discharge, fire or explosion at the facility, immediately after an emergency.

9. Ensure that, in the affected areas of the facility, no waste that may be incompatible with the discharged material is treated, stored or disposed of until cleanup procedures are completed; and all emergency equipment listed in the contingency plan is clean and fit for its intended use before operations are resumed.

(b) The owner or operator shall notify the department, the Regional Administrator and the appropriate local authorities that the facility is in compliance with par. (a)9. before operations are resumed in the affected areas of the facility.

(c) The owner or operator shall note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, the owner or operator shall submit a written report on the incident to the department. The report shall include:

1. Name, address and telephone number of the owner or operator;

2. Name, address and telephone number of the facility;

3. Date, time and type of incident, such as fire or explosion;

4. Name and quantity of materials involved;

5. The extent of injuries, if any;

6. An assessment of actual or potential hazards to human health or the environment, where this is applicable;

7. Estimated quantity and disposition of recovered material that resulted from the incident;

8. A narrative describing the known or suspected causes of the incident and a statement describing the measures taken to investigate the cause. The narrative shall also describe any necessary measures which have been or shall be taken to prevent incidents in the future; and

9. Any amendments to the contingency plan as required in sub. (1)(b) and (c).

NR 630.30 MANIFEST REQUIREMENTS. (1) The operator of a hazardous waste facility accepting out-of-state wastes is responsible for all the requirements of this chapter, including requiring the generator to initiate a Wisconsin manifest.

(2) No hazardous waste facility operator shall accept a manifested shipment of hazardous waste that does not meet the following requirements:

(a) The manifest is complete.

(b) Each container and portable tank containing hazardous waste is properly marked and labeled.

(c) The manifests, the markings and the labels are consistent.

(3) No hazardous waste facility operator may accept a hazardous waste that the facility operator is not allowed to manage under that hazardous waste facility's license, interim license, variance, waiver or licensing exemption under chs. NR 600 to 685.

(4) If a facility receives hazardous waste accompanied by a manifest, the owner, operator or an employee shall:

(a) Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received;

(b) Note any significant manifest discrepancies in the manifest that meets the criteria of sub. (6) on each copy of the manifest;

(c) Immediately give the transporter at least one copy of the signed manifest;

(d) Within 30 days after the delivery, send a copy of the manifest to the generator; and

(e) Retain at the facility a copy of each manifest for at least 3 years from the date of delivery.

(f) Send a copy of each manifest, which contains all the information required in s. NR 615.08(8) or (9), as appropriate, to the department within 5 working days.

(5) If a hazardous waste facility receives, from a rail or water bulk shipment transporter, hazardous waste which is accompanied by a shipping paper containing all the information required on the manifest, excluding the identification number, generator's certification and signature, the owner or operator, or an employee shall:

(a) Sign and date each copy of the shipping paper to certify that the hazardous waste covered by the shipping paper was received;

(b) Note any significant discrepancies in the shipping paper that meet the criteria of sub. (6) on each copy of the shipping paper;

(c) Immediately give the rail or water bulk shipment transporter at least one copy of the shipping paper;

(d) Within 30 days after the delivery, send a copy of the signed and dated shipping paper to the generator; however, if a manifest is received within 30 days after the delivery, the owner or operator, or an employee shall sign and date the manifest and return it to the generator in lieu of the shipping paper;

(e) Retain at the facility a copy of each shipping paper and manifest for at least 3 years from the date of delivery; and

(f) Send a copy of the shipping paper to the department within 5 working days.

(6) Upon discovering a significant manifest discrepancy, the owner or operator shall attempt to reconcile the discrepancy with the waste generator or transporter, such as with telephone conversations. If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operator shall immediately submit to the department a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

(7) Whenever a shipment of hazardous waste is initiated from a facility, the owner or operator of that facility shall comply with the requirements of ch. NR 615.

NR 630.31 RECORDKEEPING. (1) The owner or operator shall keep a written operating record at the facility. The following information shall be recorded, as it becomes available, and maintained in the operating record until closure of the facility:

(a) A description of the waste including its common name, hazardous waste number, physical form and quantity;

(b) The method and date of the waste's storage, treatment or disposal at the facility;

(c) The location where each hazardous waste was placed within the facility and the quantity at each location. For disposal facilities, the location and quantity of each hazardous waste shall be recorded on a map or diagram of each cell or disposal area. For all facilities, this information shall include cross-references to specific manifest document numbers, if the waste was accompanied by a manifest;

(d) Records and results of waste analyses performed as specified in ss. NR 630.12 and 630.13(1);

(e) Summary reports and details of all incidents that required implementing the contingency plan as specified in s. NR 630.22(2);

(f) Records and results of inspections as required by s. NR 630.15(4), although this data need be kept only 3 years;

(g) For off-site facilities, notices to generators as specified in s. NR 630.10(3);

(h) Monitoring, testing or analytical data, and corrective action where required by ss. NR 660.14, 665.09(10), 640.06 and 640.13(3) and chs. NR 635 and 645;

(i) Closure, and for disposal facilities, long-term care cost estimates required by s. NR 685.07(2);

(j) A certification signed by the owner or operator no less often than annually that a program is in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the owner or operator to be economically practicable; and the proposed method of treatment, storage or disposal is the practicable method currently available to the owner or operator which minimizes the present and future threat to human health and the environment;

(k) Records of the quantities and date of placement for each shipment of hazardous waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted or a petition pursuant to ch. NR 675, and the notice required by a generator under s. NR 675.05;

(l) For an off-site treatment facility, a copy of the notice required by a generator under s. NR 675.05.

(m) For an on-site treatment facility, the information contained in the notice required by a generator under s. NR 675.05, except for the manifest number;

(n) For an off-site land disposal facility, a copy of the notice and certification required by the owner or operator of a treatment facility under s. NR 675.05, or a copy of the notice and certification required by the generator under s. NR 675.05, whichever is applicable; and

(o) For an on-site land disposal facility, the information contained in the notice required under s. NR 675.05, except for the manifest number, or the information contained in the notice required by a treater under s. NR 675.05, except for the manifest number, whichever is applicable.

(2) All records including plans required under chs. NR 630 to 685 shall be furnished upon request, and made available at all reasonable times for inspection, by any officer or employe of the department.

(3) The retention period for all records required under chs. NR 630 to 685 may be extended upon written notice from the department to the owner or operator of the facility, specifying the records or types of records that are to be retained.

(4) A copy of records of waste disposal locations and quantities under sub. (1)(c) shall be submitted to the department and the local municipality upon closure of the facility.

(5) The identity and location of all stored hazardous waste shall be known throughout the entire storage period.

NR 630.40 REPORTING. (1) ANNUAL ACTIVITY REPORT. The owner or operator shall prepare and submit an annual report to the department by March 1 of each year. The annual report shall be submitted on department forms, shall cover facility activities during the previous calendar year and shall, at a minimum, include the following information:

(a) The identification number, name and address of the facility;

(b) The calendar year covered by the report;

(c) For off-site facilities, the identification number of each hazardous waste generator from which hazardous waste was received during the calendar year. For imported shipments, the report shall include the name and address of the foreign generator;

(d) A description and the quantity of each hazardous waste received during the calendar year. For off-site facilities, this information shall be listed by identification number of each generator;

(e) The method of treatment, storage or disposal for each hazardous waste;

(f) The most recent closure and, for disposal facilities, the most recent long-term care cost estimates required by s. NR 685.07(2);

(g) For generators who treat, store or dispose of hazardous waste on-site, a description of the efforts undertaken during the calendar year to reduce the volume and toxicity of hazardous waste generated;

(h) For generators who treat, store or dispose of hazardous waste on-site, a description of the changes in volume and toxicity of hazardous waste actually achieved during the calendar year in comparison to previous years to the extent the information is available for the years prior to 1984; and

(i) A certification signed by the owner or operator of the facility, or its authorized representative as specified in s. NR 680.05(2) and 680.41, stating that "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Note: The forms may be obtained from the Department of Natural Resources, P.O. Box 8094, Madison, Wisconsin 53708 at no charge.

(2) UNMANIFESTED WASTE REPORT. If a facility accepts for treatment, storage or disposal any hazardous waste from an off-site source without an accompanying manifest, or without an accompanying shipping paper as described in s. NR 620.07, and if the waste is not excluded from the manifest requirement by s. NR 610.05(1), then the owner or operator shall prepare and submit a report to the department within 15 days of receiving the waste. The report shall, at a minimum, contain the following information:

(a) The identification number, name and address of the facility;

(b) The date the facility received the waste;

(c) The identification number, name and address of the generator and transporter, if available;

(d) The date that the unmanifested hazardous waste was transported from the point of generation, if known;

(e) A description, such as by waste code under ss. NR 605.08, 605.09 and 605 - Appendix IV, and

(f) U.S. DOT shipping name, hazard class and ID number, if known, and

(g) The quantity of each unmanifested hazardous waste received;

(h) The method of treatment, storage or disposal for each hazardous waste;

(i) A brief explanation of why the waste was unmanifested, if known;

(j) The name and address of the waste's final destination; and

(k) A certification signed by the owner or operator of the facility, or its authorized representative as specified in s. NR 680.05(2) or 680.41, stating that "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

(3) ADDITIONAL REPORTS. In addition to submitting the annual activity reports and unmanifested waste reports described in subs. (1) and (2), the owner or operator shall also report the following to the department:

(a) Discharges, fires and explosions as specified in s. NR 630.22(2);

(b) Facility closures specified in s. NR 685.05(10)(b); and

(c) As otherwise required by chs. NR 635, 655 and 660, or by a license, variance or plan approval for surface impoundments, waste piles, landfills and other sites or facilities where the department may require additional information.

NR 635 - GROUNDWATER AND LEACHATE MONITORING STANDARDS AND CORRECTIVE ACTION REQUIREMENTS

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NR 635.01 PURPOSE. The purpose of this chapter is to specify groundwater and leachate monitoring requirements and corrective action requirements that result from a monitoring program.

NR 635.02 APPLICABILITY. Except as provided in s. NR 635.04, the requirements of s. NR 635.16 apply to all hazardous waste landfills and surface impoundments that accepted hazardous waste after November 19, 1980 but not after July 26, 1982 and the requirements of ss. NR 635.05 to 635.15 apply to all hazardous waste landfills, surface impoundments and waste piles that accepted hazardous waste after July 26, 1982. In addition, s. NR 635.17 applies to any hazardous waste treatment, storage or disposal facility that had or should have had an interim license. This chapter does not apply to solid waste facilities that manage only non-hazardous solid waste, metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats., or polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157.

NR 635.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 635.04 EXEMPTIONS. The requirements of this chapter do not apply to the following:

(1) Solid waste disposal facilities licensed under chs. NR 500 to 522 provided that:

(a) The solid waste disposal facility has been approved under s. NR 506.15 to accept hazardous waste only from very small quantity generators; and

(b) The solid waste disposal facility does not meet the definition of a solid waste management unit.

(2) Only non-hazardous solid waste facilities that do not meet the definition of solid waste management unit.

NR 635.05 GENERAL. (1) The owner or operator shall satisfy the following requirements for all wastes, or constituents thereof, contained in solid waste management units at the facility, regardless of the time at which waste was placed in the units:

(a) All solid waste management units shall comply with the requirements in s. NR 635.17;

(b) A surface impoundment, waste pile or landfill that receives hazardous waste after July 26, 1982 or proposes to accept hazardous waste is a regulated unit and shall comply with the requirements of ss. NR 635.05 to 635.15 in lieu of s. NR 635.17 for purposes of detecting, characterizing and responding to releases to any underlying aquifer. The financial responsibility requirements of s. NR 635.16 apply to regulated units;

(c) A surface impoundment or landfill which accepted hazardous waste after November 19, 1980 but not after July 26, 1982 is an existing unit and shall comply with the requirements of s. NR 635.16 and the financial responsibility requirements of s. NR 635.17; and

(d) The requirements of par. (b) may apply to miscellaneous units when necessary to comply with ch. NR 670.

(2) The requirements of this chapter apply during the active life of the regulated unit, including the closure period. After closure of the regulated unit, the of this chapter:

(a) Do not apply if all waste, waste residues, contaminated containment system components and contaminated subsoils are removed or decontaminated at closure;

(b) Apply during the long-term care period under s. NR 685.06 if the owner or operator is conducting a detection monitoring program under s. NR 635.13; or

(c) Apply during the compliance period under s. NR 635.11 if the owner or operator is conducting a compliance monitoring program under s. NR 635.14 or a corrective action program under s. NR 635.17.

(3) The department may require the installation of a groundwater and leachate monitoring wells, suction lysimeters, moisture probes, collection basin lysimeters and similar water quality monitoring devices, and the implementation of a water quality sampling and analysis program to detect the effects of leachate on groundwater. The location of monitoring devices and the water quality monitoring program shall be approved in writing by the department.

NR 635.06 REQUIRED PROGRAMS. Owners and operators subject to s. NR 635.05(1)(b) shall conduct a monitoring and response program as follows:

(1) Except as provided in s. NR 635.13(9), whenever hazardous constituents specified under s. NR 635.08 from a regulated unit are detected at or beyond the design management zone under s. NR 635.10, the owner or operator shall institute a compliance monitoring program under s. NR 635.14;

(2) Except as provided in s. NR 635.14(10), whenever the groundwater protection standard under s. NR 635.07 is exceeded, the owner or operator shall institute a corrective action program under s. NR 635.15;

(3) Except as provided in s. NR 635.14(10), whenever hazardous constituents under s. NR 635.08 from a regulated unit exceed concentration limits under s. NR 635.09 in groundwater between the design

management zone under s. NR 635.10 and the downgradient facility property boundary, the owner or operator shall institute a corrective action program under s. NR 635.15; or

(4) In all other cases, the owner or operator shall institute a detection monitoring program under s. NR 635.13.

(5) The department shall specify the specific elements of the monitoring and response program, which may include one or more of the programs identified in subs. (1) to (4) as may be necessary to protect human health and the environment. In deciding whether to require the owner or operator to be prepared to institute a particular program, the department shall consider the potential adverse effects on human health and the environment that might occur before final administrative action on a plan modification application to incorporate the program could be taken. The department shall specify the circumstances under which each of the programs shall be required.

NR 635.07 GROUNDWATER PROTECTION STANDARD. The owner or operator subject to the provisions of s. NR 635.05(1)(b) shall comply with conditions specified by the department that are designed to ensure that hazardous constituents under s. NR 635.08 detected in the groundwater from a regulated unit do not exceed the concentration limits under s. NR 635.09 in any aquifer at or beyond the point of standards application under s. NR 635.10 during the compliance period under s. NR 635.11. The department shall establish this groundwater protection standard when hazardous constituents have been detected in the groundwater from a regulated unit. In no case shall a standard established under this chapter be less stringent than an enforcement standard established under ch. NR 140.

NR 635.08 HAZARDOUS CONSTITUENTS. (1) For facilities subject to s. NR 635.05(1)(b), the department shall specify the hazardous constituents to which the groundwater protection standard of s. NR 635.07 applies. Hazardous constituents are constituents identified in appendix I of ch. NR 635, that have been detected in groundwater in any aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the department has excluded them under sub (2).

(2) The department may exclude an appendix I constituent from the list of hazardous constituents specified in sub. (1) if it finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to exclude a constituent, the department shall consider the following:

(a) Potential adverse effects on groundwater quality, considering:

1. The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

2. The hydrogeological characteristics of the facility and surrounding land;

3. The quantity of groundwater and the direction of groundwater flow;

4. The proximity and withdrawal rates of groundwater users;

5. The current and future uses of groundwater in the area;

6. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

7. The potential for health risks caused by human exposure to waste constituents;

8. The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents;

9. The persistence and permanence of the potential adverse effects; and

(b) Potential adverse effects on hydraulically connected surface water quality, considering:

1. The volume and physical and chemical characteristics of the waste in the regulated unit;

2. The hydrogeological characteristics of the facility and surrounding lands;

3. The quantity and quality of groundwater, and the direction of groundwater flow;

4. The patterns of rainfall in the region;

5. The proximity of the regulated unit to surface waters;

6. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

7. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

8. The potential for health risks caused by human exposure to waste constituents;

9. The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents; and

10. The persistence and permanence of potential adverse effects.

(c) Except as provided by s. NR 140.28, no other exemption may be granted to allow a violation of ch. NR 140 enforcement standards.

(3) In making any determination under sub. (2) about the use of groundwater in the area around the facility, the department may consider the uses and potential uses of any aquifers which could be impacted and the maintenance of the quality of the aquifers so those uses or potential uses are not threatened.

NR 635.09 CONCENTRATION LIMITS. (1) For facilities subject to s. NR 635.05(1)(b), the department shall specify concentration limits in the groundwater for the hazardous constituents identified under s. NR 635.08. The concentration that is specified for a hazardous constituent:

(a) May not exceed the background level of the constituent in the groundwater at the time that limit is specified in the department approval;

(b) For any of the constituents listed in table I, may not exceed the respective value given in that table if the background level of the constituent is below the value given in table I; or

(c) May not exceed an alternate concentration limit established by the department under sub. (2); and

(d) Except as provided by s. NR 140.28, may not exceed the enforcement standards established under ch. NR 140.

Table I - MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUNDWATER PROTECTION

Arsenic	0.05 mg/l
Barium	1.0 mg/l
Benzene	0.005 mg/l
Cadmium	0.01 mg/l
Carbon Tetrachloride	0.005 mg/l
Chromium	0.05 mg/l
1,2 Dichloroethane	0.005 mg/l
1,1 Dichloroethylene	0.007 mg/l
para-Dichlorobenzene	0.075 mg/l
Lead	0.05 mg/l
Mercury	0.002 mg/l
Selenium	0.01 mg/l
Silver	0.05 mg/l
1,1,1 Trichloroethane	0.20 mg/l
Trichlorethylene	0.005 mg/l
Vinyl Chloride	0.002 mg/l
Endrin (1,2,3,4,10, 10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,9a-octahydro-1, 4-endo, endo-5,8,-dimethano naphthalene)	0.0002 mg/l
Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.004 mg/l
Methoxychlor (1,1,1-Trichloro-2,2-bis (p-methoxyphenylethane)	0.1 mg/l
Toxaphene (C ₁₀ H ₁₀ C ₆ , Technical chlorinated camphene, 67-69 percent chlorine)	0.005 mg/l
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1 mg/l
2,4,5-TP Silvex (2,4,5-Trichlorophenoxy propionic acid)	0.01 mg/l

(2) The department may establish an alternate concentration limit for a hazardous constituent if the department finds that the constituent may not pose a substantial present or potential hazard to human

health or the environment if the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the department shall consider the factors listed under s. NR 635.08(2). In no case may an alternate concentration limit be established which is inconsistent with ch. NR 140.

NR 635.10 POINT OF STANDARDS APPLICATION. The point of standards application for facilities subject to regulation under this chapter is specified in s. NR 140.22(2) and (3).

(1) **DESIGN MANAGEMENT ZONE.** The design management zone and waste boundary are defined in s. NR 140.22(5)(a). The design management zone extends horizontally 0 feet beyond the waste boundary for facilities subject to the requirements of ss. NR 635.05 to 635.15, and 300 feet beyond the waste boundary for facilities subject to the requirements of s. NR 635.16.

(2) **CHANGES TO THE DESIGN MANAGEMENT ZONE.** The department may consider an expansion or reduction of the design management zone for facilities subject to the requirements of s. NR 635.16 in accordance with s. NR 140.22(5)(b). The factors that shall be considered by the department are listed in s. NR 140.22(5)(c) and (d). An owner or operator of a facility may submit a written request for approval of an expansion or reduction of the design management zone. The request shall include an evaluation of the factors listed in s. NR 140.22(5)(c) and (d).

NR 635.11 COMPLIANCE PERIOD. (1) For facilities subject to s. NR 635.05(1)(b), the department shall specify the compliance period during which the groundwater protection standard of s. NR 635.07 applies. The compliance period is the number of years equal to the active life of the facility, including any waste management activity prior to permitting and the closure period. The compliance period begins when the owner or operator initiates a compliance monitoring program which meet the requirements of s. NR 635.14.

(2) If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in sub. (1), the compliance period is extended until the owner or operator can demonstrate that the groundwater protection standard of s. NR 635.07 has not been exceeded for a period of 3 consecutive years.

(3) If the compliance period ends before the long-term care period is completed, the owner or operator shall return to detection monitoring as outlined in s. NR 635.13.

NR 635.12 GENERAL GROUNDWATER MONITORING REQUIREMENTS. The following monitoring requirements apply to all hazardous waste landfills, surface impoundments, waste piles that accepted hazardous waste after July 26, 1982 and to other facilities where required under s. NR 600.07, 635.13 to 635.15, 640.14, 645.12, 655.11 or 670.09.

(1) The number of required wells and other sampling devices shall be approved by the department based on the site size, waste type, site design and the hydrogeologic and geologic setting of the site and shall be capable of yielding groundwater samples for analysis. At a minimum, the system shall consist of:

(a) Two or more upgradient monitoring points at locations and depths sufficient to yield groundwater samples that are representative of background water quality in the uppermost aquifer near the facility and not affected by the facility.

(b) Four or more downgradient monitoring points at locations and depths to ensure immediate detection of any statistically significant amounts of hazardous wastes or leached constituents from the facility in the

uppermost aquifer. These monitoring points shall be located between the hazardous waste boundary and the property boundary as close as practical to the design management zone and shall include 2 monitoring points in a well nest configuration.

(2) The department may require 2 or more pore water sampling devices located vertically below the hazardous waste where monitoring of the unsaturated zone would aid in detecting the migration of contaminants into groundwater, and will not compromise the facility's containment capabilities.

(3) If a facility contains more than one regulated unit, separate groundwater monitoring systems are not required for each regulated unit if:

(a) The provisions for sampling groundwater in the uppermost aquifer will enable detection and measurement at the point of standards application of hazardous constituents from the regulated units that have entered the groundwater in the uppermost aquifer, and

(b) The sampling plan is approved in writing by the department.

(4) All groundwater wells and other groundwater sampling devices shall be properly developed in accordance with s. NR 660.09(1)(c)10.

(5) A leachate monitoring system shall be installed, when required, within the fill area to provide accurate measurements of leachate levels and a means of obtaining representative samples of leachate quality, and shall be located and protected to minimize accidental damage during the operation.

(6) All groundwater and leachate monitoring wells and other sampling devices shall:

(a) Be constructed of suitable inert and non-contaminating material;

(b) Be constructed to prevent vertical movement of liquid along the well pipe;

(c) Be properly protected, secured and properly labeled;

(d) Have a minimum 2-inch diameter;

(e) Be cased in a manner that maintains the integrity of the monitoring well bore hole;

(f) Have a casing that is screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples, and

(g) Have the space between the bore hole and well casing above the sampling depth sealed to prevent contamination of samples and the groundwater.

(7) Elevation of the groundwater surface at each monitoring well shall be determined at least quarterly and each time a sample is obtained. Leachate level elevations for any leachate monitoring system shall, at a minimum, be measured monthly and each time a sample is obtained.

(8) The department may require the operator to attempt to sample public or private wells as part of a regular monitoring program or to determine the extent of groundwater contamination.

(9) If for any reason a monitoring well or other monitoring device is destroyed or otherwise fails to properly function, the owner or operator of the facility shall immediately notify the department in writing. All devices shall be properly abandoned in accordance with s. NR 660.13(24) and replaced, weather permitting, with another sampling device in accordance with this section within 60 days of notification to the department unless the operator is notified otherwise in writing by the department.

(10) The owner or operator shall obtain and analyze samples from the installed groundwater monitoring system. The owner or operator shall develop and follow a groundwater sampling and analysis plan and shall keep this plan at the facility. The plan shall be approved by the department. At a minimum, the plan shall include procedures and techniques for:

(a) Sample collection;

(b) Sample preservation and shipment;

(c) Analytical procedures in accordance with standard methods for the examination of water and wastewater or other methods approved in writing by the department; and

(d) Chain of custody control.

(11) The groundwater monitoring program shall include measurement, sampling and analytical methods that are appropriate for groundwater sampling and that accurately assess groundwater quality and provide early detection of hazardous constituents entering the groundwater. The methods shall be documented in the operating record and include quality assurance and quality control procedures.

(12) An owner or operator who performs groundwater monitoring in accordance with this chapter satisfies the requirements of ch. NR 140, and is not required to evaluate groundwater monitoring through ch. NR 140, except as follows:

(a) If the background concentration established under s. NR 635.12(13) or 635.16(3), for a substance in table 1 or 2 of ch. NR 140, exceeds the ch. NR 140 preventive action limit or enforcement standards, the facility may apply for an exemption under s. NR 140.28.

(b) If a parameter identified under s. NR 635.13(1) or 635.16(2) is included in Table 1 or 2 of ch. NR 140, the notice required under ss. NR 635.13(8)(a) and 635.16(8) shall include a determination of whether or not the concentration exceeds the preventive action limit or the enforcement standard.

(13) Where appropriate, the groundwater monitoring program shall establish background groundwater quality for each of the hazardous constituents or monitoring parameters or constituents specified in the plan approval or license.

(a) In the detection monitoring program under s. NR 635.13, background groundwater quality for a monitoring parameter or constituent shall be based on data from quarterly sampling of all wells required under this chapter for one year prior to accepting waste.

(b) In the compliance monitoring program under s. NR 635.14, background groundwater quality for a hazardous constituent shall be based on data from upgradient wells that:

1. Is available before the plan approval or license is issued;

2. Accounts for measurement errors in sampling and analysis; and

3. Accounts, to the extent feasible, for seasonal fluctuations in background groundwater quality if the fluctuations are expected to affect the concentration of the hazardous constituent.

(c) Background quality may be based on sampling of wells that are not upgradient from the waste boundary where:

1. Hydrogeologic conditions do not allow the owner or operator to determine what wells are upgradient;
or

2. Sampling at other wells shall provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

(d) In developing the data base used to determine a background value for each parameter or constituent, the owner or operator shall take a minimum of one sample from each well and a minimum of 4 samples from the entire system used to determine background groundwater quality, each time the system is sampled.

(14) For facilities subject to s. NR 635.05(1)(b), the owner or operator shall use the following statistical procedure in determining whether background values or concentration limits have been exceeded:

(a) If, in a detection monitoring program, the level of a constituent at or beyond the boundary of the design management zone is to be compared to the constituent's background value and that background value has a sample coefficient of variation less than 1.00:

1. The owner or operator shall take at least 4 portions from a sample at each well at or beyond the design management zone and determine whether the difference between the mean of the constituent at each well, using all portions taken, and the background value for the constituent is significant at the 0.05 level using the Cochran's approximation to the Behrens-Fisher student's t-test. If the test indicates that the difference is significant, the owner or operator shall repeat the same procedure, with at least the same number of portions as used in the first test, with a fresh sample from the monitoring well. If this second round of analyses indicates that the difference is significant, the owner or operator shall conclude that a statistically significant change has occurred; or

2. The owner or operator may use an equivalent statistical procedure for determining whether a statistically significant change has occurred. The department shall specify a procedure if it finds that the alternative procedure reasonably balances the probability of falsely identifying a noncontaminating regulated unit and the probability of failing to identify a contaminating regulated unit in a manner that is comparable to that of the statistical procedure described in subd. 1.

(b) In all other situations in a detection monitoring program and in a compliance monitoring program, the owner or operator shall use a statistical procedure providing reasonable confidence that the migration of hazardous constituents from a regulated unit into and through the aquifer shall be indicated. The department shall specify a statistical procedure that it finds:

1. Is appropriate for the distribution of the data used to establish background values or concentrations limits; and

2. Provides a reasonable balance between the probability of falsely identifying a noncontaminating regulated unit and the probability of failing to identify a contaminating regulated unit.

NR 635.13 DETECTION MONITORING PROGRAM. The owner or operator of a facility subject to s. NR 635.05(1)(b) shall establish a detection monitoring program which shall comply with the following requirements:

(1) The owner or operator shall monitor for indicator parameters, such as specific conductance, total organic carbon or total organic halogen, for waste constituents, or reaction products, such as products produced by reactions between waste types and between leachate and soil, that provide a reliable indication

of the presence of hazardous constituents in groundwater. The department shall specify the parameters or constituents to be monitored after considering the following factors:

- (a) The types, quantities and concentrations of constituents in wastes managed at the regulated unit;
 - (b) The mobility, stability and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste boundary;
 - (c) The detectability of indicator parameters, waste constituents and reaction products in groundwater; and
 - (d) The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the groundwater background.
- (2) The owner or operator shall install a groundwater monitoring system at the design management zone as specified under s. NR 635.10. The groundwater monitoring system shall comply with s. NR 635.12(1) to (11).
- (3) The owner or operator shall establish a background value for each monitoring parameter or constituent required under sub (1). The owner or operator shall submit the background values to the department for approval.
- (a) The owner or operator shall comply with s. NR 635.12(13) in developing the data base used to determine background values.
 - (b) The owner or operator shall tabulate background values for the determination of statistically significant increases under s. NR 635.12(14).
 - (c) In taking samples used in the determination of background values, the owner or operator shall use a groundwater monitoring system that complies with s. NR 635.12(1) to (11).
 - (4) The owner or operator shall determine groundwater quality at each monitoring well at least quarterly during the active life of a regulated unit, including the closure period and the long-term care period. The owner or operator shall tabulate the groundwater quality at each monitoring well for the determination of statistically significant increases under s. NR 635.12(14).
 - (5) The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.
 - (6) The owner or operator shall use procedures and methods for sampling and analysis that meet the requirements of s. NR 635.12(10).
 - (7) The owner or operator shall determine whether there is a statistically significant change in pH or increase over background values for any parameter or constituent specified in the plan of operation approval each time the owner or operator determines groundwater quality under sub. (4).
 - (a) In determining whether a statistically significant change in pH or increase over background values has occurred, the owner or operator shall compare the groundwater quality at each monitoring well for each parameter or constituent to the background value for that parameter or constituent, according to the statistical procedure specified under s. NR 635.12(14).
 - (b) The owner or operator shall determine whether there has been a statistically significant change in pH or increase over background values at each monitoring well at the design management zone within 60 days after completion of sampling. The department may specify a different time period after considering the

complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(8) If the owner or operator determines, pursuant to sub. (7), that there is a statistically significant increase for parameters or constituents specified pursuant to sub. (1) at any monitoring well, the owner or operator shall:

(a) Notify the department of this finding in writing within 7 days. The notification shall indicate what parameters or constituents have shown statistically significant increases;

(b) Immediately sample the groundwater in all monitoring wells and determine the concentration of all constituents identified in appendix I that are present in groundwater;

(c) Establish a background value for each appendix I constituent that has been detected under par. (b) as follows:

1. The owner or operator shall comply with s. NR 635.12(13) in developing the data base used to determine background values;

2. The owner or operator shall tabulate background values for the determination of statistically significant increases under s. NR 635.12(14); and

3. The owner or operator shall use a groundwater monitoring system that complies with s. NR 635.12(1) to (11) in taking samples used in the determination of background values;

(d) Within 90 days, submit to the department an application for a plan modification to establish a compliance monitoring program meeting the requirements of s. NR 635.14. The application shall include the following information:

1. An identification of the concentration of any appendix I constituents found in the groundwater at each monitoring well;

2. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of s. NR 635.14, including wells, monitoring frequency, sampling and analysis procedures or methods, or statistical procedures;

3. For each hazardous constituent found in groundwater, a proposed concentration limit required under s. NR 635.09(1)(a) or (b) or a notice of intent to seek an alternative concentration limit under s. NR 635.09(2); and

(e) Within 180 days, submit to the department all data necessary to justify an alternative concentration limit sought under s. NR 635.09(2) and an engineering feasibility plan for a corrective action program necessary to meet the requirements of s. NR 635.15 unless:

1. Hazardous constituents identified under par. (b) are listed in table XI and their concentrations do not exceed the respective values given in that table; or

2. The owner or operator has sought an alternative concentration limit under s. NR 635.09(2) for every hazardous constituent identified under par. (b).

(9) If the owner or operator determines, pursuant to sub. (7), that there is a statistically significant change in pH or increase in the concentration of other parameters or constituents specified pursuant to sub. (1) at any monitoring well at the design management zone, the owner or operator may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling,

analysis, evaluation or natural variation in groundwater. While the owner or operator may make a demonstration under this subsection in addition to, or instead of, fulfilling the requirements under sub. (8)(d), the owner or operator is not relieved of the requirement to submit a plan modification application within the time specified in sub. (8)(d) unless the demonstration made under this subsection successfully shows that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis or evaluation. In the event that the demonstration is unsuccessful, the owner or operator shall comply with sub. (8)(b) and (c). In making a demonstration under this subsection, the owner or operator shall:

(a) Notify the department in writing that the owner or operator intends to make a demonstration under this subsection, within 7 days after determining that a statistically significant increase of parameters or constituents occurred at a monitoring well;

(b) Submit, within 90 days, a report to the department which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from the error in sampling, analysis or evaluation;

(c) Submit, within 90 days, to the department an application for a plan modification to make any appropriate changes to the detection monitoring program at the facility; and

(d) Continue to monitor in accordance with the detection monitoring program established under this section.

(10) If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of this section, the owner or operator shall, within 90 days, submit an application for a plan modification to make any appropriate changes to the program.

(11) The owner or operator shall assure that monitoring and corrective action measures necessary to achieve compliance with the groundwater protection standard under s. NR 635.07 are taken during the term of any plan approval.

NR 635.14 COMPLIANCE MONITORING PROGRAM. For facilities subject to s. NR 635.05(1)(b), an owner or operator required to establish a compliance monitoring program under s. NR 635.13 shall, at a minimum, have the following responsibilities:

(1) The owner or operator shall monitor the groundwater to determine whether regulated units are in compliance with the groundwater protection standard under s. NR 635.07. The department shall specify the groundwater protection standard including:

(a) A list of the hazardous constituents under s. NR 635.08;

(b) Concentration limits under s. NR 635.09 for each of those hazardous constituents;

(c) The point of standards application under s. NR 635.10; and

(d) The compliance period under s. NR 635.11.

(2) The owner or operator shall install a groundwater monitoring system at the point of standards application as specified under s. NR 635.10. The groundwater monitoring system shall comply with s. NR 635.12(1) to (11).

(3) Where a concentration limit established under par. (b) is based on background groundwater quality, the department shall specify the concentration limit as follows:

(a) If there is a high temporal correlation between upgradient and downgradient concentrations of the hazardous constituents, the owner or operator may establish the concentration limit through sampling at upgradient wells each time groundwater is sampled. The department shall specify the procedures used for determining the concentration limit in this manner. In all other cases, the concentration of the hazardous constituents shall be the mean of the pooled data on the concentration of the hazardous constituent.

(b) If a hazardous constituent is identified in appendix I and the difference between the concentration limit and the background value of that constituent under s. NR 635.12(13) is not statistically significant, the owner or operator shall use the background value of the constituent as the concentration limit. In determining whether this difference is statistically significant, the owner or operator shall use a statistical procedure providing reasonable confidence that a real difference shall be indicated. The statistical procedure shall:

1. Be appropriate for the distribution of the data used to establish background values; and
2. Provide a reasonable balance between the probability of falsely identifying a significant difference and the probability of failing to identify a significant difference.

(c) The owner or operator shall:

1. Comply with s. NR 635.12(13) in developing the data base used to determine background values;
2. Tabulate background values for the determination of statistically significant increases under s. NR 635.12(14); and
3. Use a groundwater monitoring system that complies with s. NR 635.12(1) to (11).

(4) The owner or operator shall determine the concentration of hazardous constituents in groundwater at each monitoring well at least quarterly during the compliance period. The owner or operator shall tabulate the concentration at each monitoring well for the determination of statistically significant increases under s. NR 635.12(14).

(5) The owner or operator shall determine the groundwater velocity and direction using new water level measurements in the uppermost aquifer at least annually.

(6) The owner or operator shall analyze samples from all monitoring wells for all constituents contained in appendix I of ch. NR 635 as specified by the department at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer. If the owner or operator finds appendix I constituents in the groundwater that are not identified in the plan approval or license as hazardous constituents, the owner or operator shall report the concentrations of these additional constituents to the department within 7 days after completion of the analysis.

(7) The owner or operator shall use procedures and methods for sampling and analysis that meet the requirements of s. NR 635.12(10).

(8) The owner or operator shall determine whether there is a statistically significant increase over the concentration limits for any hazardous constituent specified under sub. (1) each time the owner or operator determines the concentration of hazardous constituents in groundwater.

(a) In determining whether a statistically significant increase has occurred, the owner or operator shall compare the groundwater quality at each monitoring well for each hazardous constituent to the

concentration limit for that constituent according to the statistical procedures specified in the plan approval or license under s. NR 635.12(14).

(b) The owner or operator shall determine whether there has been a statistically significant increase at each monitoring well within 60 days after the completion of sampling. The department may specify a different time period after considering the complexity of the statistically test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(9) If the owner or operator determines, pursuant to sub. (8), that the groundwater protection standard is being exceeded at any monitoring well, the owner or operator shall:

(a) Notify the department of this finding in writing within 7 days. The notification shall indicate what concentration limits have been exceeded.

(b) Submit to the department an application for a plan modification to establish a corrective action program meeting the requirements of s. NR 635.15 within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the department under s. NR 635.13(8)(e). The application shall at a minimum include the following information:

1. A detailed description of corrective actions that will achieve compliance with the groundwater protection standard specified under sub. (1); and

2. A plan for a groundwater monitoring program that demonstrates the effectiveness of the corrective action. A groundwater monitoring program may be based on a compliance monitoring program developed to meet the requirements of this section.

(10) If the owner or operator determines, pursuant to sub. (8), that the groundwater protection standard is being exceeded at any monitoring well, the owner or operator may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis or evaluation. While the owner or operator may make a demonstration under this subsection in addition to, or in lieu of, submitting a plan modification application under sub. (9)(b), the owner or operator is not relieved of the requirement to submit a plan modification application within the time specified in sub. (9)(b), unless the department finds that the demonstration made under this subsection successfully shows that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis or evaluation. In making a demonstration under this subsection, the owner or operator shall:

(a) Notify the department in writing that the owner or operator intends to make a demonstration under this subsection within 7 days after determining that the groundwater protection standard is being exceeded;

(b) Submit, within 90 days, a report to the department which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis or evaluation;

(c) Submit, within 90 days, an application to the department for a plan modification to make any appropriate changes to the compliance monitoring program at the facility; and

(d) Continue to monitor in accordance with the compliance monitoring program established under this section.

(11) If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of this section, the owner or operator shall, within 90 days, submit an application for a plan modification to make any appropriate changes to the program.

(12) The owner or operator shall assure that monitoring and corrective action measures necessary to achieve compliance with the groundwater protection standard under s. NR 635.07 are taken during the term of the department approval or term of the license.

NR 635.15 CORRECTIVE ACTION PROGRAM FOR HAZARDOUS WASTE UNITS. An owner or operator required to establish a corrective action program under s. NR 635.14 shall comply with the following requirements:

(1) The owner or operator shall take corrective action to ensure that regulated units are in compliance with the groundwater protection standard under s. NR 635.07. The department shall specify the groundwater protection standard including:

- (a) The list of the hazardous constituents identified under s. NR 635.08;
- (b) The concentration limits under s. NR 635.09 for each of those hazardous constituents;
- (c) The point of standards application under s. NR 635.10; and
- (d) The compliance period under s. NR 635.11.

(2) The owner or operator shall implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at or beyond the design management zone by removing the hazardous waste constituents or treating them in place. The department may approve, conditionally approve or deny an owner or operator's corrective action plan. In a conditional approval or denial, the department may specify the corrective action measures to be taken.

(3) The owner or operator shall begin corrective action within a reasonable time period after the groundwater protection standard is exceeded. The department may specify that time period. If a department approval includes a corrective action program in addition to a compliance monitoring program, the department shall specify when the corrective action program shall begin.

(4) In conjunction with a corrective action program, the owner or operator shall establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. A monitoring program may be based on the requirements for a compliance monitoring program under s. NR 635.14 and shall be as effective as that program in determining compliance with the groundwater protection standard under s. NR 635.07 and in determining the success of a corrective action program under sub. (5) where appropriate.

(5) In addition to the other requirements of this section, the owner or operator shall conduct a corrective action program to remove or treat in place any hazardous constituents under s. NR 635.08 that exceed concentration limits under s. NR 635.09 in groundwater. The department shall specify the measures to be taken at the following locations:

(a) At or beyond the boundary of the design management zone under s. NR 635.10; and

(b) Beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the department that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake the action. The owner or operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. The owner or operator is still required to take on-site measures to address the releases. The on-site measures shall be determined by the department on a case-by-case basis.

(c) Corrective action measures under this section shall be initiated and completed within a reasonable period of time considering the extent of contamination.

(d) Corrective action measures under this section may be terminated once the concentration of hazardous constituents under s. NR 635.08 is reduced to levels below their respective concentration limits under s. NR 635.09.

(6) The owner or operator shall continue corrective action measures during the compliance period to the extent necessary to ensure that the groundwater protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, the owner or operator shall continue that corrective action for as long as necessary to achieve compliance with the groundwater protection standard. The owner or operator may terminate corrective action measures taken beyond the period equal to the active life of the facility, including the closure period, if the owner or operator can demonstrate, based on data from the groundwater monitoring program under sub. (4), that the groundwater protection standard of s. NR 635.07 has not been exceeded for a period of 3 consecutive years.

(7) The owner or operator shall report in writing to the department of the effectiveness of the corrective action program. The owner or operator shall submit these reports semi-annually.

(8) If the owner or operator determines that the corrective action program no longer satisfies the requirements of this section, the owner or operator shall, within 90 days, submit an application for a plan modification to make any appropriate changes to the program.

(9) The owner or operator shall establish proof of financial responsibility for corrective action in accordance with a department issued order or plan approval and the requirements of ch. NR 685 and s. NR 144.443, Stats.

NR 635.16 EXISTING UNIT MONITORING REQUIREMENTS. The following monitoring requirements apply to all landfills and surface impoundments which accepted hazardous wastes after November 19, 1980, but not after July 26, 1982 and to other facilities where required under ss. NR 600.07, 640.15, 645.12, 655.11 and 670.09.

(1) The general monitoring requirements of s. NR 635.12(1) to (12) apply to facilities under this section.

(2) At a minimum, the owner or operator shall determine the concentration or value of the following parameters in groundwater samples in accordance with subs. (3) and (4).

(a) Parameters characterizing the suitability of the groundwater as a drinking water supply, as specified in table II;

Table II

EPA Interim Primary Drinking Water Standards

Arsenic	0.05 mg/l
Barium	1.0 mg/l
Benzene	0.005 mg/l
Cadmium	0.01 mg/l

Carbon Tetrachloride	0.005 mg/l
Chromium	0.05 mg/l
1,2 Dichloroethane	0.005 mg/l
1,1 Dichloroethylene	0.007 mg/l
para-Dichlorobenzene	0.075 mg/l
Endrin	0.0002 mg/l
Fluoride	1.4-2.4 mg/l
Lead	0.05 mg/l
Lindane	0.004 mg/l
Mercury	0.002 mg/l
Methoxychlor	0.1 mg/l
Nitrate (as N)	10.0 mg/l
Selenium	0.01 mg/l
Silver	0.05 mg/l
Toxaphene	0.005 mg/l
1,1,1 Trichloroethane	0.20 mg/l
Trichloroethylene	0.005 mg/l
Vinyl Chloride	0.002 mg/l
2,4-D	0.1 mg/l
2,4,5-TP Silvex	0.01 mg/l
Radium	5 pCi/l
Gross Alpha	15 pCi/l
Gross Beta	4 millirem/yr
Coliform Bacteria	1/100 ml

(b) Parameters establishing groundwater quality including chloride, iron, manganese, phenols, sodium and sulfate.

(c) Parameters used as indicators of groundwater contamination, including pH, specific conductance, total organic carbon and total organic halogen.

(d) In all cases, the physical characteristics of the water sample including odor, color and turbidity shall be recorded.

(e) Any other parameters required by the department, based on the waste types accepted or other factors as appropriate.

(3) At a minimum, initial background water quality shall be established as follows:

(a) For all monitoring devices, the owner or operator shall establish initial background concentrations or values of all parameters specified in sub. (2). The owner or operator shall do this by sampling each device quarterly for one year and analyzing samples for all parameters.

(b) For each of the indicator parameters specified in sub. (2)(c) at least 4 replicate measurements shall be obtained from each quarterly sample. The initial background arithmetic mean and variance shall be determined for each indicator parameter by pooling the replicate measurements for the respective parameter concentrations or values in samples obtained from ungradient wells during the first year.

(4) After the first year, all monitoring wells and other sampling devices shall be sampled and the samples analyzed with the following minimum frequencies:

(a) Samples collected to establish groundwater quality shall be obtained and analyzed for the parameters specified in sub. (2)(b), (d) and (e) at least quarterly.

(b) Samples collected to indicate groundwater contamination shall be obtained and analyzed for the parameters specified in sub. (2)(c) and (e) at least quarterly.

(5) The owner or operator shall:

(a) Prepare an outline of a groundwater quality assessment program. The outline shall describe a comprehensive groundwater monitoring program capable of determining:

1. Whether hazardous waste or hazardous waste constituents have entered the groundwater;
2. The rate and extent of migration of hazardous waste or hazardous waste constituents in the groundwater; and
3. The concentrations of hazardous waste or hazardous waste constituents in the groundwater.

(b) For each indicator parameter specified in sub. (2)(c) or (e) calculate the arithmetic mean and variance, based on at least 4 replicate measurements on each sample, for each sampling device monitored in accordance with sub. (4)(b) and compare these results with the initial background arithmetic mean for that parameter. This comparison shall be performed in accordance with the following requirements:

1. The owner or operator shall use the student's t-test to determine statistically significant changes in the concentration or value of an indicator parameter in periodic groundwater samples when compared to the initial background concentration or value of that indicator parameter. The comparison shall consider individually each of the wells in the monitoring system. For 3 of the indicator parameters, specific conductance, total organic carbon and total organic halogen, a single-tailed student's t-test shall be used to test at the 0.01 level of significance for significant increases over background. The difference test for pH shall be a 2-tailed student's t-test at the overall 0.01 level of significance.

2. The department may require different statistical tests and levels of significance based on site specific hydrogeologic conditions, groundwater quality, waste characteristics and facility design and operation.

(6) At a minimum, the comparisons for the downgradient and upgradient wells made under sub. (5)(b) shall be submitted to the department by the owner or operator annually.

(7) If the comparisons for downgradient and for upgradient wells made under sub. (5)(b) show a statistically significant increase, or pH change, the owner or operator shall then immediately obtain additional groundwater samples from the downgradient wells where a significant difference was detected, split the samples in 2 or more portions, and obtain analyses of all additional samples to determine whether the significant difference was a result of laboratory error.

(8) If the analyses performed under sub. (7) confirm the statistically significant increase or pH change, the owner or operator shall provide written notice with appropriate documentation to the department within 7 days of the date of a confirmation that the facility may be affecting groundwater quality.

(9) Within 15 days after the notification under sub. (8), the owner or operator shall develop and submit to the department a specific plan prepared under the direction of and signed by a qualified hydrogeologist, for a groundwater quality assessment program at the facility, based on determining: whether hazardous waste or hazardous waste constituents have entered the groundwater; the rate and extent of migration of hazardous waste or hazardous waste constituents in the groundwater; and the concentrations of hazardous waste or hazardous waste constituents in the groundwater.

(10) The plan to be submitted under sub. (9) shall specify the number, location and depth of wells; the number and analysis frequency of water quality parameters for those hazardous wastes or hazardous waste constituents in the facility; evaluation procedures and groundwater quality, sampling and analytical methods to be used for determining the source or cause of contamination, including use of any previously gathered groundwater quality information; facility design and construction reports, operating procedures and facility history; and a schedule of implementation.

(11) The owner or operator shall implement the groundwater quality assessment plan which satisfies the requirements of sub. (10) and department concerns and, at a minimum, determine: the source or cause of the contamination; the rate and extent of migration of the hazardous waste and hazardous waste constituents in the groundwater; the concentrations of the hazardous waste or hazardous waste constituents in the groundwater; and short and long-term potential impacts to drinking water supplies and the environment, and proposed conceptual solutions and action to bring under control and correct the environmental damage.

(12) The owner or operator shall make the determination under sub. (11) in accordance with the time schedule approved by the department; and, within 15 days after that determination, submit to the department a written report containing an assessment of the groundwater quality, cause and effect of contamination and conceptual solutions.

(13) If the owner or operator determines, based on the results of the determination under sub. (11), that no hazardous waste or hazardous waste constituents from the facility have entered the groundwater, then the owner may reinstate the indicator evaluation program described in subs. (4) and (5)(b) to (12). If the owner or operator reinstates the indicator evaluation program, the department shall be notified in the report submitted under sub. (12).

(14) If the owner or operator determines, based on the determination under sub. (11) that hazardous waste or hazardous waste constituents from the facility have entered the groundwater, then the owner or operator shall continue to make the determinations required under sub. (11) on a quarterly basis until the end of the long-term care period for the facility, or until the groundwater quality problems at the site have been corrected as provided for in the final plans; shall submit a final plan for solutions and corrective action to control and correct the environmental damage within 180 days after the department's review of submittals under sub. (12) and shall implement the final plans for solutions and corrective actions and other

emergency procedures including department review comments within 45 days after the department's review of the final plans.

(15) Any groundwater quality assessment to satisfy the requirements of sub. (11) shall be completed and reported in accordance with sub. (12).

(16) At least annually the owner or operator shall evaluate the data on groundwater surface elevations obtained under s. NR 635.12(7) to determine whether the requirements under s. NR 635.12(1) and (5) for locating the monitoring system continue to be satisfied. If the evaluation shows that s. NR 635.12(1) and (5) are no longer satisfied, the owner or operator shall immediately notify the department and submit for department approval a plan to bring the monitoring system into compliance with this requirement.

(17) The owner or operator of the site or facility shall comply with the following reporting and record keeping requirements:

(a) The owner or operator shall report to the department the results of the sampling from each groundwater monitoring well required under s. NR 635.12(1) quarterly.

(b) The owner or operator shall annually report to the department the results of the statistical evaluation required under sub. (6) and groundwater surface elevation required under sub. (16) and a description of the response, where applicable.

(c) The owner or operator implementing a groundwater quality assessment plan under sub. (11), shall annually report to the department the results of the groundwater quality assessment program which includes, but is not limited to, the rate of contaminant migration during the reporting period.

(d) An owner or operator of a site or facility shall retain, until the end of the long-term care period, all records of monitoring and analytical activities and data, including all original strip chart recordings and instrumentation, calibration and maintenance records. The owner or operator shall inform the department prior to discarding any groundwater information.

NR 635.17 CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS . (1) The owner or operator of a facility seeking a license for the treatment, storage or disposal of hazardous waste shall institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous waste constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in a unit.

(2) Corrective action shall be specified in the license. The license shall contain schedules of compliance for corrective action where corrective action cannot be completed prior to issuance of the license and assurances of financial responsibility for completing corrective action.

(3) The owner or operator shall implement corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the department that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake actions. The owner or operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address releases shall be determined by the department on a case-by-case basis. The owner or operator shall establish proof of financial responsibility for corrective action in accordance with a department issued order or plan approval and the requirements of ch. NR 685 and s. 144.443, Stats.

APPENDIX I - GROUNDWATER MONITORING LIST

APPENDIX I ¹

GROUNDWATER MONITORING LIST

Common name ²	CAS RN ³	Chemical abstracts service index name ⁴	Suggested methods ⁵
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100 8270
Acenaphthylene	208-96-8	Acenaphthylene	8100 8270
Acetone	67-64-1	2-Propanone	8240
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270
Acetonitrile;	75-05-8	Acetonitrile	8015
Methyl cyanide			
2-Acetylamino-fluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270
Acrolein	107-02-8	2-Propenal	8030 8240
Acrylonitrile	107-13-1	2-Propenenitrile	8030 8240
Aldrin	309-00-2	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,8a-hexahydro- (1a,4a,4ab,5a,8a,8ab)-	8080 8270
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010 8240
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine	8270
Aniline	62-53-3	Benzenamine	8270
Anthracene	120-12-7	Anthracene	8100 8270
Antimony	(Total)	Antimony	6010 7040 7041
Aramite	140-57-8	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	8270
Arsenic	(Total)	Arsenic	6010 7060 7061
Barium	(Total)	Barium	6010 7080
Benzene	71-43-2	Benzene	8020 8240
Benzo[a]-anthracene;	56-55-3	Benz[a]anthracene	8100 8270
Benzanthracene			
Benzo[b]fluoran-	205-99-2	Benz[e]acephenanthrylene	8100

thene			8270
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene	8100
			8270
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100
			8270
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100
			8270
Benzyl alcohol	100-51-6	Benzenemethanol	8270
Beryllium	(Total)	Beryllium	6010
			7090
			7091
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3b,4a,5b,6b)-	8080
			8250
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2b,3a,4b,5a,6b)-	8080
			8250
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3a,4b,5a,6b)-	8080
			8250
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3b,4a,5a,6b)-	8080
			8250
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis (oxy)]bis[2-chloro-	8270
Bis(2-chloroethyl)ether	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	8270
Bis(2-chloro-1-methylethyl) ether; 2,2'-Dichlorodiisopropyl ether	108-60-1	Propane, 2,2'-oxybis[1-chloro-	8010
			8270
Bis(2-ethylhexyl) phthalate	117-81-7	'1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	8060
			8270
Bromodichloromethane	75-27-4	Methane, bromodichloro-	8010
			8240
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-	8010
			8240
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8270
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	8060
			8270
Cadmium	(Total)	Cadmium	6010
			7130
			7131
Carbon disulfide	75-15-0	Carbon disulfide	8240
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010
			8240
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-	8080
			8250

p-Chloroaniline	106-47-8	octachloro-2,3,3a,4,7, 7a-hexahydro-	8270
Chlorobenzene	108-90-7	Benzenamine, 4-chloro-	8010
		Benzene, chloro-	8020
			8240
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4- chloro-a-(4-chlorophenyl)- a-hydroxy-, ethyl ester	8270
p-Chloro-m-cresol	59-50-7	Phenol, 4-chloro-3- methyl-	8040
Chloroethane;	75-00-3	Ethane, chloro-	8270
Ethyl chloride			8010
Chloroform	67-66-3		8240
		Methane, trichloro-	8010
			8240
2-Chloro- naphthalene	91-58-7	Naphthalene, 2-chloro-	8120
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8270
			8040
			8270
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4- phenoxy-	8270
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010
			8240
Chromium	(Total)	Chromium	6010
			7190
			7191
Chrysene	218-01-9	Chrysene	8100
			8270
Cobalt	(Total)	Cobalt	6010
			7200
			7201
Copper	(Total)	Copper	6010
			7210
m-Cresol	108-39-4	Phenol, 3-methyl-	8270
o-Cresol	95-48-7	Phenol, 2-methyl-	8270
p-Cresol	106-44-5	Phenol, 4-methyl-	8270
Cyanide	57-12-5	Cyanide	9010
2,4-D; 2,4- Dichlorophenoxy- acetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150
4,4'-DDD	72-54-8	Benzene 1,1'-(2,2- dichloroethylidene)bis[4- chloro-	8080
			8270
4,4'-DDE	72-55-9	Benzene, 1,1'-(dichloro- ethenylidene)bis[4- chloro-	8080
			8270
4,4'-DDT	50-29-3	Benzene, 1,1'-(2,2,2- trichloroethylidene) bis[4-chloro-	8080
			8270
Diallate	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S- (2,3-dichloro-2-propenyl) ester	8270
Dibenz[a,h]-	53-70-3	Dibenz[a,h]anthracene	8100

anthracene			8270
Dibenzofuran	132-64-9	Dibenzofuran	8270
Dibromochloro- methane; Chloro- dibromomethane	124-48-1	Methane, dibromochloro-	8010 8240
1,2-Dibromo-3- chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3- chloro-	8010 8240 8270
1,2-Dibromoethane	106-93-4	Ethane, 1,2-dibromo-	8010 8240
Ethylene dibromide			
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060 8270
o-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010 8020 8120 8270
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-	8010 8020 8120 8270
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-	8010 8020 8120 8270
3,3'-Dichloro- benzidine	91-94-1	[1,1'-Biphenyl]-4,4'- diamine, 3,3'-dichloro-	8270
trans-1,4- Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8240
Dichlorodifluoro- methane	75-71-8	Methane, dichloro- difluoro-	8010 8240
1,1-Dichloro- ethane	75-34-3	Ethane, 1,1-dichloro-	8010 8240
1,2-Dichloro- ethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro-	8010 8240
1,1-Dichloro- ethylene; Vinyl- idene chloride	75-35-4	Ethene, 1,1-dichloro-	8010 8240
trans-1,2-Di- chloroethylene	156-60-5	Ethene, 1,2-dichloro-, (E)-	8010 8240
2,4-Dichloro- phenol	120-83-2	Phenol, 2,4-dichloro-	8040 8270
2,6-Dichloro- phenol	87-65-0	Phenol, 2,6-dichloro-	8270
1,2-Dichloro- propane	78-87-5	Propane, 1,2-dichloro-	8010 8240
cis-1,3-Di- chloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010 8240
trans-1,3-Di- chloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010 8240
Dieldrin	60-57-1	2,7:3,6-Dime- thanonaphth[2,3-b]oxirene	8080 8270
		3,4,5,6,9,9-hexachloro- 1a,2,2a,3,6,6a,7,7a-	

Diethyl phthalate	84-66-2	octahydro-, (1aa,2b,2aa,3b,6b,6aa,7b,7aa)-1,2-Benzenedicarboxylic acid, diethyl ester	8060 8270
O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin Dimethoate	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	8270
p-(Dimethyl-amino) azobenzene	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	8270
7,12-Dimethyl-benz[a]anthracene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270
3,3'-Dimethyl-benzidine	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270
alpha, alpha-Dimethyl-phenethylamine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270
2,4-Dimethyl-phenol	122-09-8	Benzeneethanamine, a,a-dimethyl-	8270
Dimethyl phthalate	105-67-9	Phenol, 2,4-dimethyl-	8040 8270
m-Dinitrobenzene	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060 8270
4,6-Dinitro-o-cresol	99-65-0	Benzene, 1,3-dinitro-	8270
2,4-Dinitrophenol	534-52-1	Phenol, 2-methyl-4,6-dinitro-	8040 8270
2,4-Dinitro-toluene	51-28-5	Phenol, 2,4-dinitro-	8040 8270
2,6-Dinitro-toluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090 8270
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090 8270
Di-n-octyl phthalate	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	8150 8270
1,4-Dioxane	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060 8270
Diphenylamine	123-91-1	1,4-Dioxane	8015
Disulfoton	122-39-4	Benzenamine, N-phenyl-	8270
Endosulfan I	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	8140 8270
Endosulfan II	959-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3a,5ab,6a,9a,9ab)-	8080 8250
	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,	8080

		10-hexachloro- 1,5,5a,6,9 9a-hexahydro-, 3-oxide, (3a,5aa,6b,9b,9aa)-	
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzo- dioxathiepin, 6,7,8,9,10, 10-hexachloro-1,5,5a,6,9, 9a-hexahydro-,3,3-dioxide	8080 8270
Endrin	72-20-8	2,7:3,6-Dimethanonaphth- [2,3-b]oxirene, 3,4,5,6, 9,9-hexachloro-1a,2,2a,3, 6,6a,7,7a-octahydro-, (1aa,2b,2ab,3a,6a, 6ab, 7b,7aa)-	8080 8250
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta- [cd]pentalene-5-carbox- aldehyde, 2,2a,3,3,4,7- hexachlorodecahydro-, (1a,2b,2ab,4b,4ab,5b,6ab, 6bb,7R*)-	8080 8270
Ethylbenzene	100-41-4	Benzene, ethyl-	8020 8240
Ethyl metha- crylate	97-63-2	2-Propenoic acid, 2- methyl-, ethyl ester	8015 8240 8270
Ethyl methane- sulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)- sulfonyl]phenyl]-O,O- dimethyl ester	8270
Fluoranthene	206-44-0	Fluoranthene	8100 8270
Fluorene	86-73-7	9H-Fluorene	8100 8270
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-hepta- chloro- 3a,4,7,7a- tetrahydro-	8080 8270
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno- [1,2-b]oxirene,2,3,4,5,6, 7,7-heptachloro-1a,1b,5, 5a,6,6a,-hexahydro-,(1aa,1bb,2a,5a,5ab,6b,6aa)	8080 8270
Hexachloro- benzene	118-74-1	Benzene, hexachloro-	8120 8270
Hexachloro- butadiene	87-68-3	1,3-Butadiene, 1,1,2,3, 4,4-hexachloro-	8120 8270
Hexachloro- cyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120 8270
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120 8270
Hexachlorophene	70-30-4	Phenol, 2,2'-	8270

Hexachloro- propene	1888-71-7	methylenebis[3,4,6- trichloro- 1-Propene, 1,1,2,3,3,3- hexachloro- 2-Hexanone	8270 8240
2-Hexanone	591-78-6	Indeno[1,2,3-cd]pyrene	8100 8270
Indeno(1,2,3- cd)pyrene	193-39-5	1-Propanol, 2-methyl- 1,4,5,8-Dimethano- naphthalene,1,2,3,4,10, 10-hexachloro-1,4,4a,5, 8,8a hexahydro-(1a,4a, 4ab,5b,8b,8ab)- 2-Cyclohexen-1-one, 3,5,5-trimethyl- 1,3-Benzodioxole, 5-(1-propenyl)- 1,3,4-Metheno-2H- cyclobuta- [cd]pentalen- 2-one, 1,1a,3,3a,4,5,5, 5a,5b,6-decachloroocta- hydro- Lead	8015 8270 8090 8270 8270 8270 6010 7420 7421 7470 8015 8240 8270
Isobutyl alcohol	78-83-1	Lead	
Isodrin	465-73-6	Mercury	
Isophorone	78-59-1	(Total)	
Isosafrole	120-58-1	Mercury	
Kepone	143-50-0	(Total)	
Lead	(Total)	Mercury	
Mercury	(Total)	2-Propenenitrile, 2-methyl- 1,2,Ethanediamine, N,N- dimethyl-N'-2-pyridinyl- N'-(2-thienylmethyl)- Benzene, 1,1'- (2,2,2,trichloroethyl- idene)bis[4-methoxy- Methane, bromo- Methane, chloro- Benz[j]aceanthrylene, 1,2-dihydro-3-methyl- Methane, dibromo- Methane, dichloro- 2-Butanone Methane, iodo- 2-Propenoic acid, 2- methyl-, methyl ester Methanesulfonic acid, methyl ester Naphthalene, 2-methyl-	7470 8015 8240 8270 8080 8270 8010 8240 8010 8240 8010 8240 8015 8240 8010 8240 8015 8240 8270 8270
Methacrylo- nitrile	126-98-7		
Methapyrilene	91-80-5		
Methoxychlor	72-43-5		
Methyl bromide; Bromomethane	74-83-9		
Methyl chloride; Chloromethane	74-87-3		
3-Methylchol- anthrene	56-49-5		
Methylene bromide; Dibromomethane	74-95-3		
Methylene chloride; Dichloromethane	75-09-2		
Methyl ethyl ketone; MEK	78-93-3		
Methyl iodide; Iodomethane	74-88-4		
Methyl methacrylate	80-62-6		
Methyl methane- sulfonate	66-27-3		
2-Methyl-	91-57-6		

naphthalene			
Methyl parathion;	298-00-0	Phosphorothioic acid,	8140
Parathion methyl		O,O-dimethyl O-(4-nitro- phenyl) ester	8270
4-Methyl-2- pentanone;	108-10-1	2-Pentanone, 4-methyl-	8015
Methyl isobutyl ketone			8240
Naphthalene	91-20-3	Naphthalene	8100
			8270
1,4-Naphtho- quinone	130-15-4	1,4-Naphthalenedione	8270
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270
Nickel	(Total)	Nickel	6010
			7520
o-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270
m-Nitroaniline	99-09-2	Benzenamine, 3-nitro-	8270
p-Nitroaniline	100-01-6	Benzenamine, 4-nitro-	8270
Nitrobenzene	98-95-3	Benzene, nitro-	8090
			8270
o-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040
			8270
p-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040
			8270
4-Nitroquinoline	56-57-5	Quinoline, 4-nitro-, 1-oxide	8270
1-oxide			
N-Nitrosodi- n-butylamine	924-16-3	1-Butanamine, N-butyl- N-nitroso-	8270
N-Nitrosodi- ethylamine	55-18-5	Ethanamine, N-ethyl- N-nitroso-	8270
N-Nitrosodi- methylamine	62-75-9	Methanamine, N-methyl- N-nitroso-	8270
N-Nitrosodi- phenylamine	86-30-6	Benzenamine, N-nitroso- N-phenyl-	8270
N-Nitrosodi- propylamine;	621-64-7	1-Propanamine, N-nitroso- N-propyl-	8270
Di-n-propyl- nitrosamine			
N-Nitroso- methylethyl- amine	10595-95-6	Ethanamine, N-methyl- N-nitroso-	8270
N-Nitroso- morpholine	59-89-2	Morpholine, 4-nitroso-	8270
N-Nitroso- piperidine	100-75-4	Piperidine, 1-nitroso-	8270
N-Nitroso- pyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270
5-Nitro-o- toluidine	99-55-8	Benzenamine, 2-methyl- 5-nitro-	8270
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl-O- (4-nitrophenyl) ester	8270

Polychlorinated biphenyls; PCBs	See 6	1,1'-Biphenyl, chloro derivatives	8080 8250
Polychlorinated dibenzo-p-dioxins; PCDDs	See 7	Dibenzo[b,e][1,4]dioxin, chloro derivatives	8280
Polychlorinated dibenzofurans; PCDFs	See 8	Dibenzofuran, chloro derivatives	8280
Pentachlorobenzene	608-93-5	Benzene, pentachloro-	8270
Pentachloroethane	76-01-7	Ethane, pentachloro-	8240 8270
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-	8270
Pentachlorophenol	87-86-5	Phenol, pentachloro-	8040 8270
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270
Phenanthrene	85-01-8	Phenanthrene	8100 8270
Phenol	108-95-2	Phenol	8040 8270
p-Phenylenediamine	106-50-3	1,4-Benzenediamine	8270
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	8140 8270
2-Picoline	109-06-8	Pyridine, 2-methyl-	8240 8270
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8015 8240
Pyrene	129-00-0	Pyrene	8100 8270
Pyridine	110-86-1	Pyridine	8240 8270
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-	8270
Selenium	(Total)	Selenium	6010 7740 7741
Silver	(Total)	Silver	6010 7760
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150
Styrene	100-42-5	Benzene, ethenyl-	8020 8240
Sulfide	18496-25-8	Sulfide	9030
2,4,5-T; 2,4,5-Tri-chlorophenoxy-acetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	8150

2,3,7,8-TCDD; 2,3,7,8-Tetra- chlorodibenzo- p-dioxin	1746-01-6	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	8280
1,2,4,5-Tetra- chlorobenzene	95-94-3	Benzene, 1,2,4,5-tetra- chloro-	8270
1,1,1,2-Tetra- chloroethane	630-20-6	Ethane, 1,1,1,2-tetra- chloro-	8010 8240
1,1,2,2-Tetra- chloroethane	79-34-5	Ethane, 1,1,2,2-tetra- chloro-	8010 8240
Tetrachloro- ethylene; Perchloroethylene; Tetrachloroethene	127-18-4	Ethene, tetrachloro-	8010 8240
2,3,4,6-Tetra- chlorophenol	58-90-2	Phenol, 2,3,4,6-tetra- chloro-	8270
Tetraethyl di- thiopyro- phosphate; Sulfotepp	3689-24-5	Thiodiphosphoric acid ((HO) ₂ P(S) ₂ O), tetra- ethyl ester	8270
Thallium	(Total)	Thallium	6010 7840 7841
Tin	(Total)	Tin	7870
Toluene	108-88-3	Benzene, methyl-	8020 8240
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270
Toxaphene	8001-35-2	Toxaphene	8080 8250
1,2,4-Trichloro- benzene	120-82-1	Benzene, 1,2,4-trichloro-	8270
1,1,1-Trichloro- ethane; Methyl- chloroform	71-55-6	Ethane, 1,1,1-trichloro-	8240
1,1,2-Trichloro- ethane	79-00-5	Ethane, 1,1,2-trichloro-	8010 8240
Trichloro- ethylene; Trichloroethene	79-01-6	Ethene, trichloro-	8010 8240
Trichlorofluoro- methane	75-69-4	Methane, trichlorofluoro-	8010 8240
2,4,5-Trichloro- phenol	95-95-4	Phenol, 2,4,5-trichloro-	8270
2,4,6-Trichloro- phenol	88-06-2	Phenol, 2,4,6-trichloro-	8040 8270
1,2,3-Trichloro- propane	96-18-4	Propane, 1,2,3-trichloro-	8010 8240
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, O,O,O-triethyl ester	8270
sym-Trinitro- benzene	99-35-4	Benzene, 1,3,5-trinitro-	8270
Vanadium	(Total)	Vanadium	6010 7910

Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	7911 8240
Vinyl chloride	75-01-4	Ethene, chloro-	8010 8240
Xylene (total)	1330-20-7	Benzene, dimethyl-	8020 8240
Zinc	(Total)	Zinc	6010 7950

¹ The regulatory requirements pertain only to the list of substances; the right hand column (Methods) is given for informational purposes only. See also footnote 5.

² Common names are those widely used in government regulations, scientific publications and commerce; synonyms exist for many chemicals.

³ Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

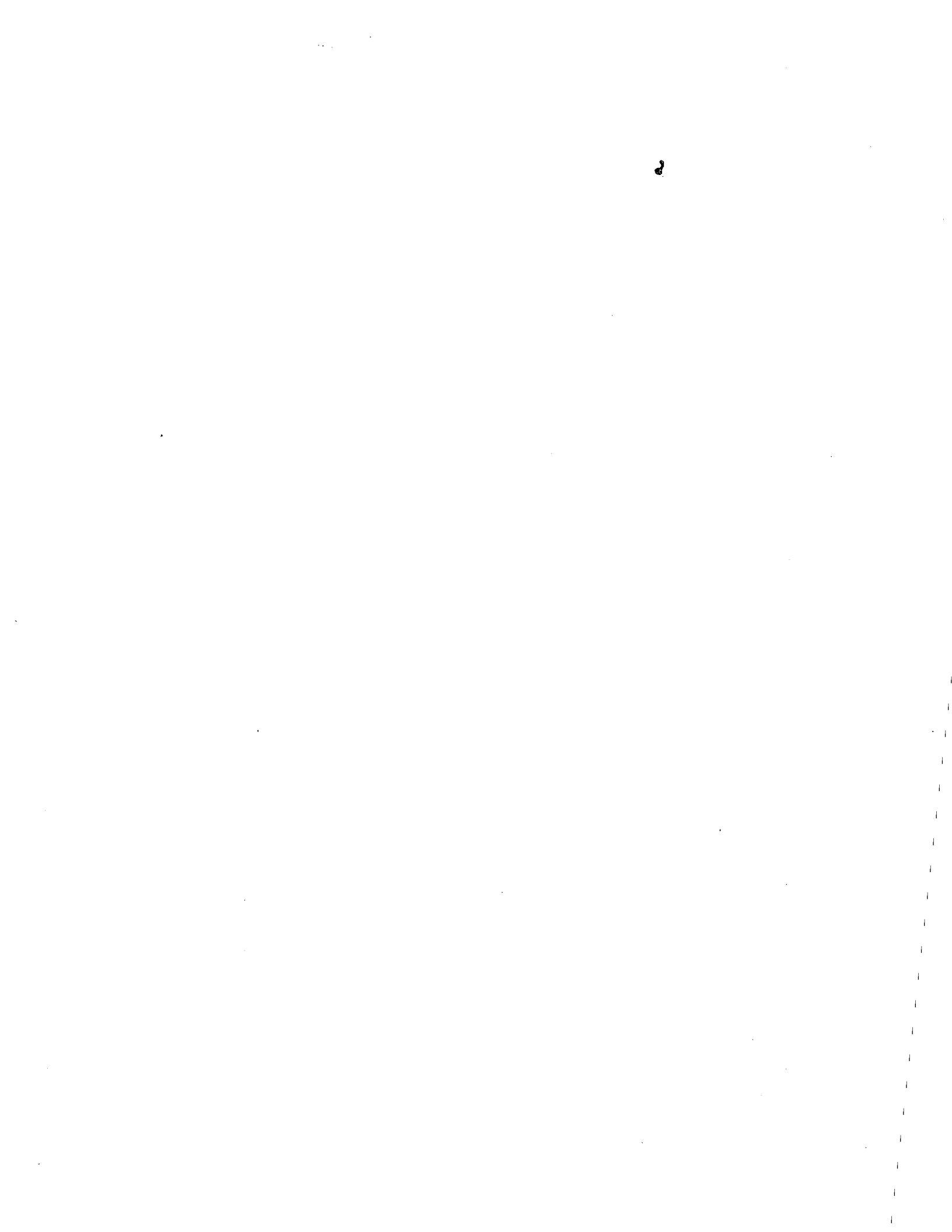
⁴ CAS index names are those used in the 9th Cumulative Index.

⁵ Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste", third edition, November 1986. Analytical details can be found in SW-846 and in documentation on file with EPA. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method or methods for monitoring an analyte under the regulations.

⁶ Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor-1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 11104-28-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1), and Aroclor-1260 (CAS RN 11096-82-5).

⁷ This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins (see also 2,3,7,8-TCDD), pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins.

⁸ This category contains congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans and hexachlorodibenzofurans. The PQL shown is an average value for PCDF congeners.



NR 640 - CONTAINER STANDARDS

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NR 640.01 PURPOSE. The purpose of this chapter is to ensure that efficient and environmentally acceptable hazardous waste treatment and storage operations are practiced and to outline the requirements for feasibility and plan of operation reports and for closure plans as they apply to hazardous waste container facilities.

NR 640.02 APPLICABILITY. Except as otherwise provided, this chapter applies to owners and operators of facilities that store or treat hazardous waste in containers. This chapter does not apply to solid waste facilities that store or treat only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 640.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 640.04 EXEMPTIONS. The requirements of this chapter do not apply to the following, except to the extent they are specifically included:

- (1) A generator accumulating hazardous waste on-site in containers in compliance with s. NR 615.05(4), except as provided in s. NR 600.07, discharge of hazardous waste.
- (2) The owner or operator of a totally enclosed treatment facility.

(3) A licensed transporter accumulating manifested shipments of waste at a transfer facility in compliance with s. NR 620.14, transfer facilities.

(4) A small quantity generator accumulating waste on-site in containers in compliance with ch. NR 610, small quantity generator standards.

(5) The owner or operator of a solid waste disposal facility licensed under chs. NR 500 to 522, if the only hazardous waste the facility stores is excluded from regulation under this chapter by s. NR 610.05(1) and the facility has been approved under s. NR 506.15 to accept small quantities of hazardous waste.

(6) The owners or operators of facilities used for the storage or treatment of metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.

Note: Metallic mining wastes are regulated under ch. NR 182.

(7) The owner or operator of a facility operating under an interim license, except to the extent that the requirements are listed in ss. NR 680.21(4) or (5) or 680.22.

(8) The owner or operator of a wastewater treatment unit, if the owner or operator complies with the requirements specified in s. NR 630.04(1).

(9) A person who stores waste lead-acid batteries that are destined for recycling and who complies with s. NR 625.12, storage of waste lead-acid batteries.

(10) The owner or operator of an elementary neutralization unit if the owner or operator complies with s. NR 630.04(7).

(11) A generator who combines absorbent material with a waste generated on-site in a container for the purpose of eliminating free liquids, if the generator complies with s. NR 615.05(6).

NR 640.05 GENERAL. Except as otherwise provided in s. NR 640.04(1) to (11), no person may maintain or operate a hazardous waste storage or treatment facility unless the person has obtained an interim license, operating license, variance or waiver from the department, in accordance with the requirements of ch. NR 680.

NR 640.06 FEASIBILITY AND PLAN OF OPERATION REPORT. (1) GENERAL. Unless specifically exempted in s. NR 640.04(1) to (10), no person shall establish, construct or expand a hazardous waste container facility or be issued an initial operating license under s. NR 680.34 without first obtaining written approval of a feasibility and plan of operation report from the department. The purpose of the feasibility and plan of operation report is to determine whether the site has potential for use as a hazardous waste container storage or treatment facility and to identify and address any operating conditions which are necessary for the proper operation of the facility. Favorable feasibility determination and plan approval under this section does not guarantee final licensure. The feasibility and plan of operation report shall be submitted in accordance with the requirements of s. 144.44, Stats., and ss. NR 680.05 to 680.09. Additional report requirements for storage and treatment facilities are included in subs. (2) and (3). Feasibility and plan of operation report requirements for small storage facilities that meet the criteria of s. NR 640.07(1) are specified in s. NR 640.07(3). The feasibility and plan of operation report shall also contain the following information:

(a) A narrative describing:

1. The legal description of the site.
2. The present ownership of the site.
3. The proposed site size and boundaries and present land use of the site and the area within ¼ mile of the site. Particular note shall be made of parks, hospitals, nursing homes and areas of archaeological and historical significance.
4. The area served, including population and major industries.
5. A complete material balance for the facility, specifying the amounts and characteristics of hazardous waste to be received and the amounts and characteristics of products and wastes which will be generated by the facility.
6. The types of vehicles and access routes used to transport hazardous waste into and out of the site or facility, an analysis of estimated traffic flow patterns on access routes and within the site or facility, and an analysis of increased quantities of traffic on access routes into and out of the site or facility. Present or proposed access roads and weight restrictions shall be included.
7. The estimated quantities and characteristics of wastes resulting from facility operations and methods of treatment or disposal.
8. The person responsible for plant construction and operation.
9. The quality and quantity of air discharge expected from plant operation.
10. The appurtenances and procedures for the storage of hazardous waste beyond the end of the processing day, for the control of dust, odors, fire, windblown materials and potential explosions and for the handling of hazardous waste in the case of major treatment facility breakdown.
11. The names and locations of all hazardous and solid waste disposal sites and facilities at which hazardous and solid wastes from the treatment facility shall be disposed.
12. The overall site or facility layout including conceptual building design, sizing of receiving area, methods of processing, and sizing of major process equipment or process areas.
13. A timetable for site or facility construction, start up and operation.
14. The operating schedule.
15. The provisions for protection of groundwater and surface waters during site or facility construction and operation.
16. A conceptual design of equipment indicating its capacity and dimensions.
17. The potential for the site to meet the location requirements in s. NR 630.18.

(b) Regional information. A discussion of the regional site setting to provide a basis for comparison and interpretation to site specific information obtained through field investigations and for analyzing siting and environmental considerations. The discussion shall be limited to information available from publications, although some field verification and updating may be desirable. Supplement discussions by maps and cross-sections. The narrative shall address the following items:

1. Topography, including predominant topographic features.
2. Hydrology, including surface water drainage patterns and significant hydrologic features such as surface waters, springs, drainage basins and divides and wetlands.
3. Geology, including the nature and distribution of bedrock and unconsolidated deposits.
4. Hydrogeology, including depth to groundwater, groundwater flow direction, recharge and discharge areas, groundwater divides, aquifers and the identification of the aquifers used by public and private wells beneath the facility property and within ¼ mile of the proposed site, unless a demonstration is made indicating why the information is not needed.
5. Ground and surface water quality as described in available regional literature.
6. Climatology.
7. Identification of adjacent landowners.
8. Zoning.
9. Present land use with particular emphasis on known recreational, historic or archaeological areas.
10. A plat map indicating property boundaries and adjacent landowners.

(c) An existing and proposed site condition topographic plan. This plan shall be a detailed topographic survey of the facility area and all area within a distance of 1500 feet of the facility. The minimum scale of this plan shall be one inch = 200 feet with a maximum 2-foot contour interval. The contour interval shall be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operating unit of the facility. All elevations shall be related to USGS data. More than one plan sheet shall be prepared to show the required information if one sheet will be too detailed to be clear. The plan or plans shall clearly show:

1. 100-year floodplain area.
2. Surface waters, including wetlands and intermittent streams.
3. Homes, buildings, man-made features and utility lines.
4. Surrounding land uses, such as residential, commercial, agricultural and recreational.
5. Property boundaries, facility or waste management boundaries, including any previous solid or hazardous waste disposal area.
6. Access control, such as fences and gates.
7. Water supply wells and any other wells, such as irrigation wells.
8. Well boring locations and observation well locations.
9. A wind rose, which shows prevailing wind speed and direction.
10. Buildings, treatment, storage or disposal operations or other structures such as recreation areas, runoff control systems, access and internal roads, storm, sanitary, and process sewerage systems, loading and unloading areas, fire control facilities.

11. Barriers for drainage or flood control.

12. Location of operational units within the facility where hazardous waste is or will be treated or stored, including equipment cleanup areas.

(d) The narrative in par. (a) shall be supplemented by the following maps or plans:

1. 'USGS quadrangle map'. This shall be a 7½ minute, topographic map, if it is available. The radius of coverage shall be sufficient to show sources of waste for a minimum of 3 miles. If impractical to show the site or facility locations relative to the source of waste, a separate location map displaying this information shall be provided.

2. 'Plat map'. This shall indicate property boundaries and zoning within ¼ mile of the proposed facility and anticipated traffic routes within 2 miles of the site or facility.

3. 'Existing site conditions map'. The extent of coverage shall be the entire site and the area within ¼ mile of the site boundaries. The minimum scale shall be one inch = 200 feet. Map details shall include the proposed site boundary, property lines, easements and rights-of-way; buildings, foundations, roads, utilities and other structures; topography, for the site only unless the map is needed to define drainage patterns around facility; wooded areas; location of soil borings and test pits; features of historical and archaeological significance; and other physical site features as appropriate.

4. 'Proposed facility plan'. This plan shall include proposed site or facility access roads and traffic patterns, buildings, scales, utility lines, drainage diversion, screening, means of access control, final topography, areas to be cleared of vegetation and other design features. The extent of coverage and scale shall be the same as that for the existing site conditions map.

(e) Hazardous constituents. If the presence of hazardous constituents has been detected in the groundwater at the point of standards application at the time of feasibility and plan of operation report submittal, the owner or operator shall submit sufficient information, supporting data and analyses to establish a compliance monitoring program which meets the requirements of ss. NR 635.05 to 635.13. Except as provided in s. NR 635.13(9), the owner or operator shall also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of s. NR 635.14, unless the owner or operator obtains written authorization in advance from the department to submit a proposed license schedule for submittal of the plan. To demonstrate compliance with s. NR 635.13, the owner or operator shall submit the following items:

1. A description of the wastes previously handled at the facility;

2. A characterization of the contaminated groundwater, including concentrations of hazardous constituents;

3. A list of hazardous constituents for which compliance monitoring shall be undertaken in accordance with ss. NR 635.09 and 635.11;

4. Proposed concentration limits for each hazardous constituent, based on the criteria in s. NR 635.09, including a justification for establishing any alternate concentration limits;

5. Detailed plans and an engineering report describing the proposed groundwater monitoring system in accordance with the requirements of ch. NR 635; and

6. A description of proposed sampling, analysis and statistical comparison procedure to be utilized in evaluating groundwater monitoring data.

(f) Design constraints. Recommendations on design constraints for development of the site considering all available data shall be made and reasons given for the recommendations. This shall include a discussion of the potential for the site to meet locational requirements in s. NR 630.18 and make conclusions and recommendations on site development. For expansion of existing facilities, the report shall include sufficient information to assess the effectiveness of the existing facility design and operation in protecting air, surface water and groundwater quality.

(g) Engineering plans. Engineering plans shall consist of the following:

1. A title sheet indicating the project title, who prepared the plans, the person for whom the plans were prepared, a table of contents and a location map showing the location of the site and if applicable the area to be served.

2. A final site topography plan sheet indicating the appearance of the site at closing including the details necessary to prepare the site for long-term care.

(h) When applicable, the following information shall be presented on the plan sheets:

1. A survey grid with base lines and monuments to be used for field control.

2. All drainage patterns and surface water drainage control structures both within the actual fill area and at the site perimeter. Structures may include all piping, berms, sedimentation basins, pumps, culverts, inlets and methods of erosion control.

3. Ground surface contours at the time represented by the drawing. Spot elevations shall be indicated for key features.

4. Access roads and traffic flow patterns to and within the facility.

5. All temporary and permanent fencing.

6. The methods of screening such as berms, vegetation or special fencing.

7. Groundwater monitoring devices and detection systems.

8. Support buildings, scale, utilities, gates and signs.

9. Special waste handling areas.

10. Construction notes and references to details.

11. Other appropriate site features.

(2) STORAGE FACILITIES. In addition to the requirements of sub. (1), the feasibility and plan of operation report for hazardous waste container storage facilities shall include the following:

(a) A description of the containment system to demonstrate compliance with s. NR 640.13, including:

1. Basic design parameters, dimensions and materials of construction.

2. How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system.

3. Capacity of the containment system relative to the number and volume of containers.
4. Provisions for preventing or managing run-on.
5. How accumulated liquids can be analyzed and removed to prevent overflow.

(b) A description of how s. NR 630.17(2) shall be complied with to meet the requirements of ss. NR 640.10 and 640.15(2).

(c) Sketches, drawings or data demonstrating compliance with the buffer zone requirements of ss. NR 640.14 and 640.15(1).

(d) An operations and maintenance manual consisting of the following information:

1. Identification of the project title; engineering consultant; site owner, licensee and operator; proposed licensed acreage; site life and design capacity; municipalities, industries and collection and transportation agencies served; waste types and quantities to be disposed; and any exemptions applied for.

2. Specifications for site construction and operation, including detailed instructions to the site operator and any contractors for all aspects of site construction and operation. References to specifications on the plan sheets shall be pointed out as well as additional instructions included, where appropriate. The specifications shall include, as applicable, the following information:

- a. Initial site preparations including specifications for clearing and grubbing, other excavations, drainage control structures, access roads and entrance, screening, fencing and other special design features.

- b. A plan for initial site preparations including a discussion of the field measurements, photographs to be taken and sampling and testing procedures to be utilized to verify that the infield conditions encountered were the same as those contained in the feasibility and plan of operation report.

3. A description of daily operations including, as appropriate, a discussion of the timetable for development, waste types accepted or excluded, typical waste handling techniques, hours of operation, traffic routing, drainage and erosion control, windy, wet and cold weather operations, fire protection equipment, manpower, methods for handling of incompatible waste types, methods for vector, daily clean-up, recordkeeping, parking for visitors and employees, monitoring, backup equipment with names and telephone numbers where equipment may be obtained and other special design features. This may be developed as a removable section to improve accessibility for the site operator.

(e) A design report which shall include supplemental discussions and design calculations to facilitate department review and provide supplemental information on financial responsibility for closure as required by ss. 144.44 and 144.443, Stats., including the following information:

1. A discussion of the reasoning and logic behind the design of the major features of the site or facility as appropriate, such as traffic routing, base grade and relationships to subsurface conditions, anticipated waste types and characteristics, phases of development, facility monitoring, and similar design features shall be provided. A list of the conditions of site development as stated in the department determination of the feasibility and the measures taken to meet the conditions shall be included. A discussion of all calculations, estimate of site life and surface water run-off shall be included. The calculations shall be summarized with the detailed equations presented in the appendix.

2. A closure plan as required by ss. NR 640.16 and 685.05.

3. A detailed analysis in accordance with s. NR 685.07 shall be made of the financial responsibility for closure from the time of site or facility closing to termination.

(f) A contingency plan as specified in ss. NR 630.21 and 630.22(1) and (2).

(g) An appendix which shall include any additional data not previously presented, calculations, material specifications, operating agreements and other appropriate information.

(3) TREATMENT FACILITIES. In addition to the requirements of sub (1), the feasibility and plan of operation report for hazardous waste treatment facilities shall include the following:

(a) The supplemental narrative information required by sub. (1)(d) which shall include the following:

1. 'Proposed process layout'. The extent of coverage shall include the receiving, processing and loadout areas. The minimum scale shall be one inch = 200 feet. Plan details shall include conceptual design for receiving area configuration and traffic flow patterns, treatment area and equipment configuration, loadout area and equipment configuration, traffic flow patterns and other pertinent design features.

2. 'Cross-sections'. At least one cross-section shall be drawn through the treatment area, each process line where applicable, indicating existing topography, the design of building foundations and other pertinent design features. More cross-sections may be necessary depending on complexity of site or facility design.

(b) Complete construction plans and specifications detailing the exact configurations, locations, elevations, dimensions and construction and installation procedures for all structures, equipment and site modifications associated with the treatment process. Where practical the minimum scale utilized shall be one inch = 20 feet for buildings, equipment and structures, and one inch = 100 feet for site plans. To facilitate review, the construction plans and specifications shall include separate engineering drawings for the following:

1. 'Existing site conditions'. The extent of coverage and plan details shall be the same as required for an existing site conditions map in sub. (1)(d)3.

2. 'Construction conditions'. A plot plan shall be submitted which indicates the appearance of the site during facility construction. The extent of coverage and scale shall be identical to those required for an existing site conditions map in sub. (1)(d)3. The plot plan shall show limits of construction areas to be cleared of vegetation and topsoil, demolition of existing structures, areas of borrow and fill, temporary or permanent drainage diversion, soil erosion protection measures, construction access roads, soil and stripped vegetation stockpiles or storage areas, equipment storage areas, and other details necessary to determine the impacts during facility construction.

3. 'Facility plan'. A plot plan shall be submitted showing the facility at completion of construction. The extent of coverage and scale shall be the same as required for an existing site conditions map in sub. (1)(d)3. Plan details shall include those required for the existing site conditions map and any modifications thereto, plus means of limiting access such as fencing, gates or natural barriers; methods of screening the facility from the surrounding area; general layout of receiving, processing and loadout areas and equipment; traffic flow patterns; access roads; and location of discrete air contaminant discharges.

(c) A design report with the construction plans and specifications providing a discussion of design features, logic and calculations. The report shall discuss the following;

1. Where applicable, show calculations for size and configuration of receiving area; size, configuration and capacity of process treatment equipment, methods of handling liquid wastes resulting from operations such as floor drains, sewers and water treatment facilities; residence time and process equipment; size and configuration of loadout and storage facilities for process outputs; sizing of surface water drainage control structures; traffic queuing and flow patterns; design life of facility equipment, buildings and appurtenances;

timetable for construction; and methods of screening the facility from the surrounding area. The calculations shall be summarized with detailed equations presented in the appendix.

2. Explain how the materials used in construction of the treatment facility shall be compatible, under expected operating conditions, with the hazardous waste and any treatment chemicals or reagents used in the treatment process.

3. Contain waste analyses for chemical, physical or biological treatment processes. In addition to the waste analysis required by s. NR 630.12, whenever a hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment, or a substantially different process than any previously used at the facility is to be used to chemically treat hazardous waste, the owner or operator shall:

a. Conduct waste analyses and trial treatment tests, such as bench scale or pilot plant scale tests; or

b. Obtain written, documented information on similar treatment of similar waste under similar operating conditions to show that this proposed treatment will meet all applicable requirements of sub. (3)(c)2. and s. NR 630.17(2).

4. That all uncovered reaction containers shall be sized to provide no less than 2 feet freeboard at any time to prevent splashing or spillage of hazardous waste during the treatment.

5. That a facility shall have the capacity to remove and store the emergency transfer of reactor contents, or shall have emergency storage capacity to be used in the event of an equipment breakdown or malfunction.

6. That where hazardous waste is continuously fed into a treatment process or equipment, the process or equipment shall be equipped with an automatic waste feed cutoff or a by-pass system which is activated when a malfunction in the treatment process occurs.

7. That all residuals or by-products from a treatment process shall be analyzed to determine whether they are a hazardous waste as identified in ch. NR 605 or they shall be assumed to be a hazardous waste.

8. That the of hazardous waste shall take place only in approved, designated areas.

9. That if, for any reason the treatment facility is rendered inoperable or is not able to completely process the hazardous waste, an approved alternative method shall be used for hazardous waste treatment or disposal.

10. That chemical, physical or biological treatment of hazardous waste, shall comply with the general requirements for ignitable, reactive or incompatible wastes in s. NR 630.17(2).

11. That incompatible wastes may not be placed in the same process or equipment used for chemical, physical or biological treatment.

12. That ignitable or reactive waste may not be placed in a process or equipment used to chemically, physically or biologically treat a hazardous waste unless:

a. The waste is treated, rendered or mixed before or immediately after placement in the process or equipment so that the resulting mixture or dissolution of material no longer meets the criteria of ignitable or reactive waste in s. NR 605.08(2) or (4) and s. NR 630.17(2) is complied with, or;

b. The waste is treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react.

(d) Operations and maintenance manual. A manual shall be prepared with separate sections specifying operating and maintenance procedures for the following:

1. 'Facility startup and process shakedown'. This shall include a discussion of personnel training, quantities and characteristics of hazardous waste to be processed; process line startup procedures and equipment performance evaluations; fire, dust, and vapor control systems; performance evaluations; process raw materials on hand at startup; process outputs testing; and other appropriate startup procedures.

2. 'Normal operations'. This shall include a discussion of operating personnel responsibilities; hours of operation; daily processing schedule; routine process monitoring including monitoring quantity and quality of hazardous waste input; process output testing; equipment maintenance schedules; methods of controlling explosions, fire, odors and windblown materials; special waste handling procedures; method of controlling access; daily cleanup procedures; facility bypass procedures during major breakdowns and alternative means of disposal; person responsible for operation; site or facility licensee and owner; recordkeeping; emergency procedures for handling of freezeup during cold weather; methods to prevent hazardous waste from burning; and other pertinent information.

3. Records of operating conditions shall be retained as specified in s. NR 630.31.

4. A closure plan as required by ss. NR 640.16 and 685.05.

5. A detailed analysis in accordance with s. NR 685.07 shall be made of the financial responsibility for closure from the time of site or facility closing to termination.

(4) DEPARTMENT'S REVIEW. (a) Within 60 days after a feasibility and plan of operation report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility and plan of operation report is complete by determining whether or not the minimum requirements in s. NR 640.07(3)(a) have been met. Additional information may be required of the applicant after a determination that the report is complete only if the department establishes that a detailed review of the report indicates that feasibility cannot be determined or the report is insufficient in the absence of additional information.

(b) If no hearing has been conducted under s. 144.44, Stats., the department shall issue the final determination for the feasibility and plan of operation report within 60 days after the 45 days notice period required under s. 144.44 (2)(l) and (m), Stats., has expired. If an informational hearing is conducted under s. 144.44 (2g), Stats., the department shall issue a final determination for the feasibility and plan of operation report within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 144.44 (2r), Stats., a final determination for the feasibility and plan of operation report shall be issued within 90 days after the hearing is adjourned.

NR 640.07 SMALL STORAGE FACILITY REQUIREMENTS. (1) GENERAL. The feasibility and plan of operation report submittal requirements of sub. (3) may be met in lieu of the requirements of s. NR 640.06 for hazardous waste storage facilities that have the following characteristics:

(a) Hazardous waste storage is entirely in an enclosed and roofed structure having access limited or restricted to employees or other authorized personnel;

(b) Hazardous waste storage is confined to a floor area of 1500 sq. ft. or less;

(c) Hazardous waste storage does not exceed 10,000 gallons at any time;

(d) Hazardous waste is stored generally for the purpose of accumulating a sufficient quantity for a more economical transfer for treatment or disposal; and

(e) All hazardous waste is stored in containers.

(2) EXEMPTIONS. (a) The owner or operator of a hazardous waste small storage facility is exempt from the feasibility and plan of operation report requirements in sub. (3) for that facility, if:

1. The owner or operator has been issued a permit for storage of hazardous waste at the facility under 42 USC 6925 (c);

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

2. The facility is in compliance with the permit required under subd. 1; and

3. If the facility only stores wastes that do not contain free liquids, the facility shall obtain written approval of the information required under sub. (3)(a)7. This information shall be submitted in accordance with s. NR 680.05(1)(b) and (c).

(b) Any person exempt from sub. (3) under par. (a) shall obtain an operating license as required under s. NR 680.31.

(3) FEASIBILITY AND PLAN OF OPERATION REPORT. (a) Any person proposing to establish, construct, expand or obtain an initial operating license under s. NR 680.31 for a hazardous waste small storage facility shall first obtain written approval of a feasibility and plan of operation report from the department, unless exempted under sub. (2). The feasibility and plan of operation report shall be submitted in accordance with s. 144.44, Stats., and ss. NR 680.05, 680.06 and 680.09, and shall at a minimum, contain the following information:

1. A narrative description of the area proposed for storage of hazardous waste;

2. A general floor plan of the storage area and any pertinent adjacent areas;

3. A description of any existing or proposed fire prevention or control systems, communication equipment and security systems or arrangements at the facility;

4. A description of the hazardous or solid wastes, that will be stored at the proposed facility, along with projected volumes or weights and accumulation times;

5. An evaluation of the storage area's capability of containing spills;

6. A description of any past experience with storage of hazardous wastes at the facility;

7. For container storage, a description of the containment system to demonstrate compliance with s. NR 640.13, including:

a. Basic design parameters, dimensions and materials of construction.

b. How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system.

c. Capacity of the containment system relative to the number and volume of containers.

d. Provisions for preventing run-on.

e. How accumulated liquids can be analyzed and removed to prevent overflow;

8. Storage and waste management procedures, including a description of how s. NR 630.17(2) will be complied with to meet the applicable requirements of ss. NR 640.10 and 640.15;

9. An explanation of recordkeeping and container labeling procedures;

10. A contingency plan, as required by ss. NR 630.21 and 630.22(1) and (2);

11. A plan sheet, sketch or other data which demonstrates compliance with the buffer zone requirements in s. NR 640.15(1);

12. A closure plan for the facility, as required by ss. NR 685.05 and 640.16(2); and

13. The most recent closure cost estimate for the facility prepared in accordance with s. NR 685.07(2).

(b) Within 60 days after a feasibility and plan of operation report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility and plan of operation report is complete by determining whether or not the minimum requirements in par. (a) have been met. Additional information may be required of the applicant after a determination that the report is complete only if the department establishes that a detailed review of the report indicates that feasibility cannot be determined or the report is insufficient in the absence of additional information.

(c) If no hearing has been conducted under s. 144.44, Stats., the department shall issue the final determination for the feasibility and plan of operation report within 60 days after the 45 days notice period required under s. 144.44 (2)(l) and (m), Stats., has expired. If an informational hearing is conducted under s. 144.44 (2g), Stats., the department shall issue a final determination for the feasibility and plan of operation report within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 144.44 (2r), Stats., a final determination for the feasibility and plan of operation report shall be issued within 90 days after the hearing is adjourned.

(d) The department may conduct a site visit during the plan review period.

(e) Based on the site visit under par. (d), the department may require additional information for the feasibility and plan of operation report as provided in s. NR 640.06.

(4) OPERATION. A storage facility approved under this section shall meet all of the substantive and operating requirements of ss. NR 640.08 to 640.15.

(5) CLOSURE. Closure requirements specified under ss. NR 685.05 and 640.16 are applicable to small storage facilities approved under this section.

NR 640.08 AISLE SPACE REQUIREMENTS. (1) Adequate aisle space shall be maintained to allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in an emergency.

(2) Adequate aisle space shall be maintained to allow for the unobstructed movement of personnel conducting inspections required by s. NR 640.12.

(3) The department may specify a minimum aisle space on a case by case basis depending upon factors such as total number of containers stored, container management and handling techniques, container stack height and fire protection and spill control equipment maintained at the facility.

NR 640.09 CONDITION OF CONTAINERS. Hazardous waste shall be managed in containers that are in good condition. If a container is not in good condition or if the contents of a storage or treatment container begin to leak, the hazardous waste in the container shall be recontainerized in a storage or treatment container in good condition.

NR 640.10 COMPATIBILITY OF WASTE WITH CONTAINERS. Hazardous waste containers shall be made or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored so that the ability of the container to contain the waste is not impaired.

NR 640.11 MANAGEMENT OF CONTAINERS. (1) In accordance with s. NR 630.31(1) and (2), the identity and location of all hazardous waste shall be known throughout the entire storage period or until the waste is treated so that it is no longer hazardous.

(2) A container holding hazardous waste shall always be closed during storage, except when it is necessary to add or remove waste.

(3) A container holding hazardous waste may not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

(4) All uncovered containers used as reaction vessels shall be sized to provide no less than 2 feet of freeboard at any time to prevent splashing or spilling of hazardous waste during treatment.

NR 640.12 INSPECTIONS. (1) The owner or operator of a container storage facility shall inspect at least weekly, all containers and areas where containers are stored or treatment occurs, looking for leaks and for deterioration of containers and the containment system, caused by corrosion or other factors in accordance with s. NR 630.15. Records of these inspections shall be maintained in accordance with s. NR 630.31.

(2) The owner or operator of a facility that treats hazardous waste shall inspect, where present:

(a) Discharge control and safety equipment, such as waste feed cut-off systems, by-pass systems, drainage systems, and pressure relief systems, at least once each operating day, to ensure that it is in good working order;

(b) Data gathered from monitoring equipment, such as pressure and temperature gauges, at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;

(c) The construction materials of the process equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and

(d) The construction materials of, and the area immediately surrounding, discharge confinement structures, such as dikes, at least weekly, to detect erosion or obvious signs of leakage, such as wet spots or dead vegetation.

NR 640.13 CONTAINMENT. (1) Each storage area for containers shall have a containment system designed and constructed to have a continuous base which is free of cracks or gaps and is impervious to the material to be stored, and will contain any hazardous waste discharges, leaks or spills and precipitation until the collected material is detected and can be removed. The base of the storage areas shall be sloped or the containment system shall be otherwise designed and operated to drain and remove liquids resulting from hazardous waste discharges, leaks, spills and any precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids. The storage areas shall have a discharge confinement structure with a minimum capacity equal to the contents of the largest container, or 10% of the total amount of stored waste, whichever is greater. If the storage area is not enclosed, the discharge confinement structure shall also provide sufficient freeboard to allow for containment of precipitation resulting from a 24-hour, 25-year storm. Surface water run-on to the containment system shall be prevented. Spilled, leaked or discharged waste and accumulated precipitation shall be removed from a sump or the collection area in an expedient manner and quickly enough to prevent an overflow of the confinement system.

(2) Management of hazardous waste in containers shall be conducted in such a manner that no discharge of hazardous waste occurs.

(3) Under s. NR 600.07, an owner or operator of a hazardous waste container facility may be required to comply with all or part of the requirements of chs. NR 600 to 685, including groundwater and leachate monitoring and corrective action requirements of ch. NR 635, if the department determines that there is potential for discharge of hazardous waste or hazardous waste constituents to the environment.

NR 640.14 SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE. Containers holding ignitable or reactive waste shall be located at least 50 feet from the facility's property line.

NR 640.15 SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES. (1) Containers holding a hazardous waste which is incompatible with any waste or other materials stored nearby in other containers, waste piles, open tanks or surface impoundments shall be separated from other wastes or materials or protected from them by means of a dike, berm, wall or other device.

Note: The purpose of this section is to prevent fires, explosions, gaseous emissions, leaching or other discharge of hazardous waste or hazardous waste constituents which could result from the mixing of incompatible wastes or materials if containers break or leak.

(2) Hazardous waste may not be placed:

- (a) In an unwashed container that previously held an incompatible waste or material.
- (b) In a container that holds incompatible waste or material, unless s. NR 630.17(2) is complied with.

NR 640.16 CLOSURE. The owner or operator of a hazardous waste container facility shall meet the requirements specified in chs. NR 680 and 685 and the following requirements:

(1) The owner or operator of a facility which stores or treats hazardous waste in containers shall, at completion of closure, remove all hazardous waste and hazardous waste residues from the containment system. Remaining liners, bases, soil and related equipment or structures containing or contaminated with hazardous waste or hazardous waste residues shall be decontaminated or removed. This includes, but is not limited to, ash and sludges from treatment process and equipment, discharge control equipment and discharge confinement structures. All wastes or material which is decontaminated or removed shall be managed as a hazardous waste in accordance with the requirements of chs. NR 600 to 685, unless s. NR 605.04(3) applies.

(2) Final disposal of hazardous waste may not be permitted at a hazardous waste storage facility, unless the facility has a separate license for disposal.



NR 645 - TANK SYSTEM STANDARDS

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NR 645.01 PURPOSE. The purpose of this chapter is to ensure that efficient and environmentally acceptable hazardous waste treatment and storage operations are practiced and to describe the requirements for feasibility and plan of operation reports and for closure plans as they apply to hazardous waste tank systems.

NR 645.02 APPLICABILITY. Except as otherwise provided, this chapter applies to owners and operators of facilities that store or treat hazardous waste in tank systems. This chapter does not apply to solid waste facilities that store or treat only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 645.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 645.04 EXEMPTIONS. The requirements of this chapter do not apply to the following, except to the extent they are specifically included:

- (1) A generator accumulating hazardous waste on-site in tanks in compliance with s. NR 615.05(4), except to the extent that the requirements of this chapter are made applicable under s. NR 600.07, discharge of hazardous waste.
- (2) The owner or operator of a totally enclosed treatment facility.

(3) A small quantity generator accumulating waste on-site in tanks in compliance with ch. NR 610, small quantity generator standards.

(4) The owner or operator of a wastewater treatment unit, if the owner or operator complies with the requirements specified in s. NR 630.04(1).

(5) The owner or operator of an elementary neutralization unit if the owner or operator complies with s. NR 630.04(7).

(6) The owner or operator of a POTW storing spent pickle liquor, prior to recycling at the POTW, in a tank which is approved under s. 144.04, Stats.

NR 645.05 GENERAL. (1) Except as otherwise provided in s. NR 645.04, no person may maintain or operate a hazardous waste storage or treatment facility unless the person has obtained an interim license, operating license, variance or waiver from the department, in accordance with the requirements of ch. NR 680.

(2) Final disposal of hazardous waste may not be permitted at a hazardous waste storage or treatment facility, unless the facility has a separate license for disposal.

NR 645.06 FEASIBILITY AND PLAN OF OPERATION REPORT. (1) ALL FACILITIES. Unless specifically exempted in s. NR 645.04(1) to (8), no person shall establish, construct or expand a hazardous waste storage or treatment facility or be issued an initial operating license under s. NR 680.34 without first obtaining written approval of a feasibility and plan of operation report from the department. The purpose of the feasibility and plan of operation report is to determine whether the site has potential for use as a hazardous waste storage or treatment tank facility and to identify and address any operating conditions which are necessary for the proper operation of the facility. Favorable feasibility determination and plan approval under this section does not guarantee final licensure. The feasibility and plan of operation report shall be submitted in accordance with the requirements of s. 144.44, Stats., and ss. NR 680.05(1), 680.06(3) and 680.10 and shall contain the applicable material required by this section. Additional report requirements for storage and treatment tank facilities are included in subs. (2) and (3). Feasibility and plan of operation report requirements for small storage tank facilities, that meet the criteria in s. NR 645.16(1), are specified in s. NR 645.16(3). The feasibility and plan of operation report shall also contain the following information:

(a) A narrative describing:

1. Legal description of the site.

2. Present ownership of the site.

3. Proposed site size and boundaries and present land use of the site and the area within $\frac{1}{4}$ mile of the site. Particular note shall be made of parks, hospitals, nursing homes and areas of archaeological and historical significance.

4. Area served, including population and major industries.

5. A complete material balance for the facility, specifying the amounts and characteristics of hazardous waste to be received and the amounts and characteristics of products and wastes which will be generated by the facility.

6. Types of vehicles and access routes used to transport hazardous waste into and out of the site or facility, an analysis of estimated traffic flow patterns on access routes and within the site or facility, and an analysis of increased quantities of traffic on access routes into and out of the site or facility. If roads are to be used, current or proposed access roads and weight restrictions shall be included.

7. Estimated quantities and characteristics of wastes resulting from facility operations and methods of treatment or disposal.

8. Person responsible for plant construction and operation.

9. Quality and quantity of air discharge expected from plant operation.

10. Appurtenances and procedures for the storage of hazardous waste beyond the end of the processing day, for the control of dust, odors, fire, windblown materials and potential explosions and for the handling of hazardous waste in the case of major treatment facility breakdown.

11. Names and locations of all hazardous and solid waste disposal sites and facilities at which hazardous and solid wastes from the treatment plant will be disposed.

12. Overall site or facility layout including conceptual building design, sizing of receiving area, methods of processing, and sizing of major process equipment or process areas.

13. A timetable for site or facility construction, start up and operation.

14. Operating schedule.

15. Provisions for protection of groundwater and surface waters during site or facility construction and operation.

16. Conceptual design of equipment indicating its capacity and dimensions.

17. The potential for the site to meet the location requirements in s. NR 630.18.

(b) A discussion of the regional site setting to provide a basis for comparison and interpretation to site specific information obtained through field investigations and for analyzing siting and environmental considerations. Discussions should be limited to information available from publications, although some field verification and updating may be desirable. Discussions shall be supplemented by maps and cross-sections. The following items shall also be discussed:

1. Topography, including predominant topographic features.

2. Hydrology, including surface water drainage patterns and significant hydrologic features such as surface waters, springs, drainage basins and divides and wetlands.

3. Geology, including the nature and distribution of bedrock and unconsolidated deposits.

4. Hydrogeology, including depth to groundwater, groundwater flow direction, recharge and discharge areas, groundwater divides, aquifers and the identification of the aquifers use by public and private wells beneath the facility property and within one half mile of the proposed site, unless a demonstration is made to the department's satisfaction indicating why the information is not needed.

5. Ground and surface water quality as described in available regional literature.

6. Climatology.

7. Identification of adjacent landowners.

8. Zoning.

9. Present land use with particular emphasis on known recreational, historic or archaeological areas.

(c) An existing and proposed site condition topographic plan. This shall be a detailed topographic survey of the facility area and all area within a distance of 1500 feet of the facility. The minimum scale of this plan shall be one inch = 200 feet with a maximum 2-foot contour interval. The contour interval shall be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operating unit of the facility. All elevations shall be related to USGS data. More than one plan sheet shall be prepared to show the required information if one sheet will be too detailed to be clear. The plan or plans shall clearly show:

1. 100-year floodplain area.

2. Surface waters, including wetlands and intermittent streams.

3. Homes, buildings, man-made features and utility lines.

4. Surrounding land uses, such as residential, commercial, agricultural, recreational and wooded areas.

5. Proposed site boundary.

6. Property boundaries, facility or waste management boundaries, including any previous solid or hazardous waste disposal areas.

7. Access control, such as fences and gates.

8. Water supply wells and any other wells, such as irrigation wells.

9. Well boring locations and observation well locations.

10. Location of soil borings and test pits.

11. A wind rose, which shows prevailing wind speed and direction.

12. Buildings, treatment, storage or disposal operations or other structures such as recreation areas, runoff control systems, access and internal roads, storm, sanitary, and process sewerage systems, loading and unloading areas, fire control facilities, easements and rights-of way.

13. Barriers for drainage or flood control.

14. Features of historical and archeological significance.

15. Location of operational units within the facility where hazardous waste is or will be treated or stored, including equipment cleanup areas.

(d) The narrative in par. (a) shall be supplemented by the following maps or plans:

1. 'USGS quadrangle map'. This shall be a 7½ minute, topographic map, if available. The radius of coverage shall be sufficient to show sources of waste for a minimum of 3 miles. If impractical to show the

site or facility locations relative to the source of waste, a separate location map displaying this information shall be provided.

2. 'Plat map'. This shall indicate property boundaries and zoning within $\frac{1}{4}$ mile of the proposed facility and anticipated traffic routes within 2 miles of the site or facility.

3. 'Proposed facility plan'. This plan shall include proposed site or facility access roads and traffic patterns, buildings, scales, utility lines, drainage diversion, screening, means of access control, final topography, areas to be cleared of vegetation and other design features. The extent of coverage and scale shall be the same as that for the existing site conditions map.

(e) If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of feasibility and plan of operation report submittal, the owner or operator shall submit sufficient information, supporting data and analyses to establish a compliance monitoring program which meets the requirements of ss. NR 635.05 to 635.15. Except as provided in s. NR 635.13(9), the owner or operator shall also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of s. NR 635.15, unless the owner or operator obtains written authorization in advance from the department to submit a proposed license schedule for submittal of the plan. To demonstrate compliance with s. NR 635.13, the owner or operator shall submit the following items:

1. A description of the wastes previously handled at the facility;

2. A characterization of the contaminated groundwater, including concentrations of hazardous constituents;

3. A list of hazardous constituents for which compliance monitoring shall be undertaken in accordance with ss. NR 635.05 to 635.15;

4. Proposed concentration limits for each hazardous constituent, based on the criteria set forth in s. NR 635.09, including a justification for establishing any alternate concentration limits;

5. Detailed plans and an engineering report describing the proposed groundwater monitoring system in accordance with the requirements of ss. NR 635.05 to 635.15; and

6. A description of proposed sampling, analysis and statistical comparison procedure to be utilized in evaluating groundwater monitoring data.

(f) Recommendations on design constraints for development of the site considering all available data shall be made and reasons given for the recommendations. This shall include a discussion of the potential for the site to meet locational requirements in s. NR 630.18. For expansion of existing facilities, the report shall include sufficient information to assess the effectiveness of the existing facility design and operation in protecting air, surface water and groundwater quality.

(g) Engineering plans, which shall consist of the following:

1. A title sheet indicating the project title, who prepared the plans, the person for whom the plans were prepared, a table of contents and a location map showing the location of the site and if applicable the area to be served.

2. A final site topography plan sheet indicating the appearance of the site at closing including the details necessary to prepare the site for long-term care.

(h) When applicable, the following information shall be presented on the plan sheets:

1. A survey grid with base lines and monuments to be used for field control.

2. All drainage patterns and surface water drainage control structures both within the actual facility and at the site perimeter. The structures may include all piping, berms, sedimentation basins, pumps, culverts, inlets and methods of erosion control.

3. Ground surface contours at the time represented by the drawing. Spot elevations shall be indicated for key features.

4. Access roads and traffic flow patterns to and within the facility.

5. All temporary and permanent fencing.

6. The methods of screening such as berms, vegetation or special fencing.

7. Groundwater monitoring devices and detection systems.

8. Support buildings, scales, utilities, gates and signs.

9. Special waste handling areas.

10. Construction notes and references to details.

11. Other appropriate site features.

(i) Except as otherwise provided in s. NR 645.02, owners and operators of tanks shall provide the following information:

1. A written assessment that is reviewed and certified by an independent, qualified, registered professional engineer as to the structural integrity and suitability for handling hazardous waste of each tank system as required by s. NR 645.07 and 645.08;

2. Dimensions and capacity of each tank;

3. Description of feed systems, safety cutoff, bypass systems and pressure controls, such as vents;

4. A diagram of piping, instrumentation and process flow for each tank system;

5. A description of materials and equipment used to provide external corrosion protection as required under s. NR 645.08(1)(c)2.;

6. For new tank systems, a detailed description of how the tank system shall be installed in compliance with s. NR 645.08(2) to (5);

7. Detailed plans and description of how the secondary containment system for each tank system is designed and constructed to meet the requirements of s. NR 645.09(3) to (8);

8. For tank systems for which a variance from the requirements of s. NR 645.09 is sought as provided by s. NR 645.09(9):

a. Detailed plans, engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that shall, in conjunction with location aspects, prevent the migration of any hazardous waste or hazardous constituents into the groundwater or surface water during the life of the facility, or

b. A detailed assessment of the substantial present or potential hazards posed to human health or the environment should a release enter the environment.

9. Description of controls and practices to prevent spills and overflows as required under s. NR 645.10(2).

10. Detailed plans and description of how the secondary containment system for each tank system is or shall be operated to meet the requirements of s. NR 645.09(3) to (8); and

11. For tank systems in which ignitable, reactive or incompatible wastes are to be stored or treated, a description of how the operating procedures and the tank system and facility design shall achieve compliance with the requirements of ss. NR 645.13 and 645.14(2).

(2) STORAGE FACILITIES. In addition to the requirements of sub. (1), the feasibility and plan of operation report for hazardous waste tank system storage facilities shall include the following:

(a) A description of the secondary containment system to demonstrate compliance with s. NR 645.09, including:

1. Basic design parameters, dimensions and materials of construction.
2. How the design promotes drainage or how tanks are kept from contact with standing liquids in the secondary containment system.
3. Capacity of the secondary containment system relative to the number and volume of tanks.
4. Provisions for preventing or managing run-on.
5. How accumulated liquids can be analyzed and removed to prevent overflow.

(b) A description of how s. NR 630.17(2) shall be complied with to meet the requirements of ss. NR 645.13 and 645.14.

(c) Sketches, drawings or data demonstrating compliance with the buffer zone requirements of s. NR 645.13(2).

(d) An operations and maintenance manual consisting of the following information:

1. Identification of the project title; engineering consultant; site owner, licensee and operator; proposed licensed acreage; site life and design capacity; municipalities, industries and collection and transportation agencies served; waste types and quantities to be treated or stored; and any exemptions applied for.

2. Specifications for site construction and operation shall be presented, including detailed instructions to the site operator and any contractors for all aspects of site construction and operation. References to specifications on the plan sheets shall be pointed out as well as additional instructions included, where appropriate. The specifications shall include, as applicable, the following information:

a. Initial site preparations including specifications for clearing and grubbing, other excavations, drainage control structures, access roads and entrance, screening, fencing and other special design features.

b. A plan for initial site preparations including a discussion of the field measurements, photographs to be taken and sampling and testing procedures to be utilized to verify that the infield conditions encountered were the same as those specified in the feasibility and plan of operation report.

3. A description of daily operations including, as appropriate, a discussion of the timetable for development, waste types accepted or excluded, typical waste handling techniques, hours of operation, traffic routing, drainage and erosion control, windy, wet and cold weather operations, fire protection equipment, manpower, methods for handling of incompatible waste types, methods for vector, daily clean-up, recordkeeping, parking for visitors and employees, monitoring, backup equipment with names and telephone numbers where equipment may be obtained and other special design features. This may be developed as a removable section to improve accessibility for the site operator.

(e) A design report shall be submitted which shall include supplemental discussions and design calculations to facilitate department review and provide supplemental information on financial responsibility for closure and long-term care as required by ss. 144.44 and 144.443, Stats., including the following information:

1. A discussion of the reasoning and logic behind the design of the major features of the site or facility as appropriate, such as traffic routing, base grade and relationships to subsurface conditions, anticipated waste types and characteristics, phases of development, facility monitoring, and similar design features shall be provided. A discussion of all calculations, estimate of site life and surface water run-off shall be included. The calculations shall be summarized with the detailed equations presented in the appendix to the feasibility and plan of operation report.

2. A closure plan as required by ss. NR 645.17 and 685.05.

3. A detailed analysis in accordance with s. NR 685.07 of the financial responsibility for closure from the time of site or facility closing to termination.

(f) A contingency plan as specified in ss. NR 630.21 and 630.22(1) and (2).

(g) An appendix shall be submitted which shall include any additional data not previously presented, calculations, material specifications, operating agreements and other appropriate information.

(3) TREATMENT FACILITIES. In addition to the requirements of sub (1), the feasibility and plan of operation report for hazardous waste treatment tank facilities shall address compliance with the following:

(a) The supplemental narrative information required by sub. (1)(d) shall include the following:

1. 'Proposed process layout'. The extent of coverage shall include the receiving, processing and loadout areas. The minimum scale shall be one inch = 200 feet. Plan details shall include conceptual design for receiving area configuration and traffic flow patterns, treatment area and equipment configuration, loadout area and equipment configuration, traffic flow patterns and other pertinent design features.

2. 'Design report'. A design report shall be submitted with the construction plans and specifications providing a discussion of design features, logic and calculations. Where applicable, show calculations for size and configuration of receiving area; size, configuration and capacity of process treatment equipment, methods of handling liquid wastes resulting from operations such as floor drains, sewers and water treatment facilities; residence time and process equipment; size and configuration of loadout and storage facilities for process outputs; sizing of surface water drainage control structures; traffic queuing and flow patterns; design life of facility equipment, buildings and appurtenances; timetable for construction; and methods of screening the facility from the surrounding area. The calculations shall be summarized with detailed equations presented in an appendix to the feasibility and plan of operation report.

(b) Minimum requirements for facility design and operation. 1. 'Construction materials'. The materials used in construction of the treatment facility shall be compatible, under expected operating conditions, with the hazardous waste and any treatment chemicals or reagents used in the treatment process.

2. 'Waste analyses for chemical, physical or biological treatment processes'. In addition to the waste analysis required by s. NR 630.12, whenever a hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment, or a substantially different process than any previously used at the facility is to be used to chemically treat hazardous waste, the owner or operator shall:

a. Conduct waste analyses and trial treatment tests, such as bench scale or pilot plant scale tests; or

b. Obtain written, documented information on similar treatment of similar waste under similar operating conditions to show that this proposed treatment will meet all applicable requirements of sub. (3)(c)2. and s. NR 630.17(2).

3. 'Uncovered reaction vessels'. All uncovered reaction vessels shall be sized to provide no less than 2 feet freeboard at any time to prevent splashing or spillage of hazardous waste during the treatment.

4. 'Emergency transfer of reactor contents'. A facility shall have the capacity to remove and store the emergency transfer of reactor contents, or shall have emergency storage capacity to be used in the event of an equipment breakdown or malfunction.

5. 'Malfunction abatement'. Where hazardous waste is continuously fed into a treatment process or equipment, the process or equipment shall be equipped with an automatic waste feed cutoff or a by-pass system which is activated when a malfunction in the treatment process occurs.

6. 'Residuals or by-product analysis'. All residuals or by-products from a treatment process shall either be analyzed to determine whether they are a hazardous waste as identified in ch. NR 605 or be assumed to be a hazardous waste.

7. 'Unloading of hazardous waste'. Unloading of hazardous waste shall take place only in approved, designated areas.

8. 'Alternate methods for treatment or disposal'. If for any reason the treatment facility is rendered inoperable or is not able to completely process the hazardous waste, an approved alternative method shall be used for hazardous waste treatment or disposal.

9. 'Compliance with general requirements'. Chemical, physical or biological treatment of hazardous waste, shall comply with the general requirements for ignitable, reactive or incompatible wastes in s. NR 630.17(2).

10. 'Incompatible wastes'. Incompatible wastes shall not be placed in the same process or equipment used for chemical, physical or biological treatment.

11. 'Ignitable or reactive wastes'. Ignitable or reactive waste shall not be placed in a process or equipment used to chemically, physically or biologically treat a hazardous waste unless:

a. The waste is treated, rendered or mixed before or immediately after placement in the process or equipment so that the resulting mixture or dissolution of material no longer meets the criteria of ignitable or reactive waste in s. NR 605.08(2) or (4) so that s. NR 630.17(2) is complied with, or;

b. The waste is treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react.

12. 'Secondary containment system'. Detailed plans and description of how the secondary containment system for each tank system is or shall be operated to meet the requirements of s. NR 645.09(3) to (8); and

13. 'Operating procedures'. For tank systems in which ignitable, reactive or incompatible wastes are to be stored, a description of how the operating procedures and the tank system and facility design shall achieve compliance with the requirements of ss. NR 645.13 and 645.14(2).

(c) Operations and maintenance manual. A manual shall be prepared with separate sections specifying operating and maintenance procedures for the following:

1. 'Facility startup and process shakedown'. This shall include a discussion of personnel training; quantities and characteristics of hazardous waste to be processed; process line startup procedures and equipment performance evaluations; fire, dust, and vapor control systems; performance evaluations; process raw materials on hand at startup; process outputs testing; and other appropriate startup procedures.

2. 'Normal operations'. This shall include a discussion of operating personnel responsibilities; hours of operation; daily processing schedule; routine process monitoring including monitoring quantity and quality of hazardous waste input; process output testing; equipment maintenance schedules; methods of controlling explosions, fire, odors and windblown materials; special waste handling procedures; method of controlling access; daily cleanup procedures; facility bypass procedures during major breakdowns and alternative means of disposal; person responsible for operation; site or facility licensee and owner; recordkeeping; emergency procedures for handling of freezep during cold weather; methods to prevent hazardous waste from burning; and other pertinent information.

(d) Records of operating conditions as specified in s. NR 630.31.

(e) A closure plan as required by s. NR 645.17 and s. NR 685.05.

(f) Inspections and monitoring. The owner or operator of a facility that chemically, physically or biologically treats hazardous waste shall inspect, where present:

1. Discharge control and safety equipment, such as waste feed cut-off systems, bypass systems, drainage systems and pressure relief systems, at least once each operating day, to ensure that it is in good working order;

2. Data gathered from monitoring equipment, such as pressure and temperature gauges, at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;

3. The construction materials of the process equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and

4. The construction materials of discharge confinement structures, such as dikes and the area immediately surrounding, at least weekly, to detect erosion or obvious signs of leakage, such as wet spots or dead vegetation.

(4) DEPARTMENT'S REVIEW. (a) Within 60 days after a feasibility and plan of operation report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility and plan of operation report is complete by determining whether or not the minimum requirements in subs. (1) to (3) have been met. Additional information may be required of the applicant after a determination that the report is complete only if the department establishes that a detailed review of the report indicates that feasibility cannot be determined or the report is insufficient in the absence of additional information.

(b) If no hearing has been conducted under s. 144.44, Stats., the department shall issue the final determination for the feasibility and plan of operation report within 60 days after the 45 days notice period

required under s. 144.44(2)(l) and (m), Stats., has expired. If an informational hearing is conducted under s. 144.44(2g), Stats., the department shall issue a final determination for the feasibility and plan of operation report within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 144.44(2r), Stats., a final determination for the feasibility and plan of operation report shall be issued within 90 days after the hearing is adjourned.

NR 645.07 ASSESSMENT OF EXISTING TANK SYSTEM'S INTEGRITY. (1) For each existing tank system that does not have secondary containment meeting the requirements of s. NR 645.09, the owner or operator shall determine that the tank system is not leaking or is unfit for use. Except as provided in sub.(2)(e)3, the owner or operator shall obtain and keep on file at that facility a written assessment reviewed and certified by an independent, qualified, registered professional engineer in accordance with s. NR 680.05(2)(d), that attests to the tank system's integrity by [Revisor: Insert 18 months after the effective date].

(2) This assessment shall determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the wastes to be stored or treated to ensure that it will not collapse, rupture or fail. At a minimum, this assessment shall consider the following:

(a) Design standards, if available, according to which the tank and ancillary equipment were constructed;

(b) Hazardous characteristics of the waste or wastes that have been and will be handled;

(c) Existing corrosion protection measures;

(d) Documented age of the tank system, if available, or an estimate of the age; and

(e) Results of a leak test, internal inspection or other tank system integrity examination such that:

1. For underground tanks that cannot be entered, the assessment shall include a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets and high water table effects, and

2. For tanks other than those underground tanks that cannot be entered and for ancillary equipment, this assessment shall include either a leak test, as described above, or other integrity examination, that is certified by an independent, qualified, registered professional engineer in accordance with s. NR 680.05(2)(d), that addresses cracks, leaks, corrosion and erosion.

Note: The practices described in the American Petroleum Institute (API) Publication, Guide for Inspection of Refinery Equipment, Chapter XIII, "Atmospheric and Low-Pressure Storage Tanks," 4th edition, 1981, may be used, where applicable, as guidelines in conducting the integrity examination of other than an underground tank that cannot be entered. This publication may be obtained from:

American Petroleum Institute
1220 L Street NW
Washington, D.C. 20005

(3) Tank systems that store or treat materials that become hazardous wastes subsequent to [the effective date of this rule . . . Revisor insert date] shall conduct this assessment within 12 months after the date that the waste becomes a hazardous waste.

(4) If, as a result of the assessment conducted in accordance with sub. (1), a tank system is found to be leaking or unfit for use, the owner or operator shall comply with the requirements of s. NR 645.12.

(5) Tank systems which contain volatile waste shall be in compliance with all appropriate air management rules contained in chs. NR 400 to 499 regarding the control of organic compound emissions.

NR 645.08 DESIGN AND INSTALLATION OF NEW TANK SYSTEM OR TANK SYSTEM COMPONENTS.

(1) Owners or operators of new tank systems or tank system components shall obtain and submit to the department, at the time of submittal of the feasibility and plan of operation report, a written assessment, reviewed and certified by an independent, qualified registered professional engineer, in accordance with s. NR 680.05(2)(d), attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment shall show that the foundation, structural support, seams, connections and pressure controls, if applicable, are adequately designed and that the tank system has sufficient structural strength, compatibility with the wastes to be stored and treated and corrosion protection to ensure that it will not collapse, rupture or fail. This assessment, which will be used by the department to review and approve or disapprove the acceptability of the tank system design, shall include, at a minimum, the following information:

(a) Design standards according to which either tanks or the ancillary equipment, or both, are constructed;

(b) Hazardous characteristics of the wastes to be handled;

(c) For new tank systems or tank system components in which the external shell of a metal tank or any external metal tank system component will be in contact with the soil or with water, submit a determination by a corrosion expert of:

1. Factors affecting the potential for corrosion, including but not limited to:

a. Soil moisture content;

b. Soil pH;

c. Soil sulfides level;

d. Soil resistivity;

e. Structure to soil potential;

f. Influence of nearby underground metal structures, such as piping;

g. Existence of stray electric current;

h. Existing corrosion protection measures, such as coating or cathodic protection.

2. The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or tank system component, consisting of one or more of the following:

a. Corrosion resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc.;

b. Corrosion resistant coating, such as epoxy or fiberglass, with cathodic protection, such as impressed current or sacrificial anodes; and

c. Electrical isolation devices, such as insulating joints or flanges.

Note: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP-02-85) - Control of External Corrosion on Metallic Buried, Partially Buried or Submerged Liquid Storage Systems," whose address is:

National Association of Corrosion Engineers
P.O. Box 218340
Houston, Texas 77218

Telephone: (713) 492-0535

and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," whose address is:

American Petroleum Institute
1220 L Street NW
Washington, D.C. 20005

may be used, where applicable, as guidelines in providing corrosion protection for tank systems.

(d) Design considerations shall ensure that:

1. Tank foundations will maintain the load of a full tank;

2. Tank systems will be anchored to prevent floatation or dislodgement where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of s. NR 630.18(5); and

3. Tank systems will withstand the effects of frost heave.

(e) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that shall protect the tank system against potential damage.

(2) The owner or operator of a new tank system shall ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing or placing a new tank system or tank system component in use, an independent, qualified installation inspector or an independent, qualified, registered professional engineer, in accordance with s. NR 680.05(2)(d), either of whom is trained and experienced in the proper installation of tank systems or tank system components, shall inspect the system for presence of any of the items in the following list. All discrepancies shall be remedied before the tank system is covered, enclosed or placed in use. The items to be inspected include:

(a) Weld breaks;

(b) Punctures;

(c) Scrapes of protective coatings;

(d) Cracks;

(e) Corrosion;

(f) Other structural damage or inadequate construction or installation.

(3) New tank systems or tank system components and piping that are placed underground and that are backfilled shall be provided with a backfill material that is a noncorrosive, porous and homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

(4) All new tanks and ancillary equipment shall be tested for leak tightness prior to being covered, enclosed or placed in use. If a tank system is found to not be tight, all repairs necessary to remedy any leak in the system shall be performed prior to the tank system being covered, enclosed or placed into use.

(5) Ancillary equipment shall be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

Note: The piping system installation procedures described in American Petroleum Institute (API) Publication 1615, November, 1979, "Installation of Underground Petroleum Storage Systems," or ANSI Standard B31.3, "Petroleum Refinery Piping," and ANSI Standard B31.4, "Liquid Petroleum Transportation Piping System" may be used, where applicable, as guidelines for proper installation of piping systems.

(6) The owner or operator shall provide the type and degree of corrosion protection recommended by an independent corrosion expert, based upon the information provided under sub.(1)(c), or other corrosion protection if the department, in its review of the proposed installation under sub. (1), believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated shall be supervised by an independent corrosion expert to ensure proper installation.

(7) The owner or operator shall obtain and keep on file at the facility, written statements by those persons who are required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of subs. (2) to (6), that attest that the tank system was properly designed and installed, and that repairs, pursuant to subs. (2) and (4), were performed. These written statements shall also include the certification statements as required in s. NR 680.05(2)(d).

NR 645.09 SECONDARY CONTAINMENT AND DETECTION OF RELEASES. (1) Tank systems that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor that is designed and constructed to have a continuous base which is free of cracks or gaps and is impervious to the material to be stored or treated, are exempt from the requirements in this section. To demonstrate the absence or presence of free liquids in the stored or treated waste, EPA Method 9095, Paint Filter Liquids Test, as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846, shall be used.

(2) Tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempt from the requirements of subs. (3) and (11).

(3) In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this section shall be provided, except as provided in subs. (8) and (9):

(a) For all new tank systems or tank system components prior to their being placed into service;

(b) For all existing tank systems used to store EPA Hazardous Waste Numbers F020, F021, F022, F023, F026 and F027, by [revisor: insert 2 years and 6 months of the effective date of this rule];

(c) For those existing tank systems that are owned or operated by small quantity generators or are underground and non-enterable for inspection, and that are of known and documented age, by [revisor: insert the effective date of this rule] or when the tank system has reached 15 years of age, whichever comes later. For all other existing tank systems that are of known and documented age, within 6 months of the effective date of this rule or when the tank system has reached 15 years of age, whichever comes later.

(d) For those existing tank systems that are owned or operated by small quantity generators or are underground and non-enterable for inspection, and for which the age cannot be documented, by January 12, 1995; but, if the age of the facility is greater than 7 years, secondary containment shall be provided within 15 years of commencement of construction of the facility or by [revisor: insert the effective date of this rule], whichever is later. For all other existing tank systems for which the age cannot be documented, by [8 years and 6 months of the effective date of this rule: revisor insert date]; but, if the age of the facility is greater than 7 years, secondary containment shall be provided within 15 years of commencement of construction of the facility or by [2 years and 6 months of the effective date of this rule: revisor insert date], whichever is later; and

(e) For tank systems that store materials that become hazardous wastes subsequent to [6 months of the effective date of this rule . . .revisor insert date], within time intervals required in pars. (a) to (d), except that the date that a material becomes a hazardous waste shall be used in place of [6 months of the effective date of this rule . . .revisor insert date].

(4) Secondary containment systems shall be:

(a) Designed, installed and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater or surface water at any time during the use of the tank system; and

(b) Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

(5) To meet the requirements of sub. (4), secondary containment systems shall be at a minimum:

(a) Constructed of or lined with materials that are compatible with wastes that are to be placed in the tank system and shall have sufficient strength and thickness to prevent failure owing to the pressure gradients, including static head and external hydrological forces, physical contact with the waste to which it is exposed, climatic conditions and the stress of daily operation, including stresses from nearby vehicular traffic.

(b) Placed upon a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system and capable of preventing failure due to settlement, compression or uplift;

(c) Provided with a leak detection system that is designed and operated to detect the failure of either the tank system or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours or at the earliest practicable time if the owner or operator can demonstrate to the department that existing detection technologies or site conditions will not allow detection of a release within 24 hours; and

(d) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills or precipitation. Spilled or leaked waste and accumulated precipitation shall be removed from the secondary containment system within 24 hours, or in as timely a manner as possible to prevent harm to human health

and the environment, if the owner or operator can demonstrate to the department that removal of the released waste or accumulated precipitation cannot be accomplished within 24 hours.

Note: If the collected material is hazardous waste under s. NR 605.04, 605.08(1) to (5) or 605.09, it is subject to management as a hazardous waste in accordance with all applicable requirements of chs. NR 600 to 685. If the collected material is discharged through a point source to waters of the state, or to a publicly owned treatment works (POTW), it is subject to regulation under ch. 147, Stats. If the collected material is released to the environment, it may be subject to the reporting requirements of s.144.76, Stats.

(6) Secondary containment for tanks shall include one or more of the following devices:

- (a) A liner, external to the tank;
- (b) A vault;
- (c) A double walled tank; or
- (d) An equivalent device as approved by the department.

(7) In addition to the requirements of subs. (4), (5) and (6), secondary containment systems shall satisfy the following requirements:

(a) External liner systems shall be:

1. Designed or operated to contain 100 percent of the capacity of the largest tank and its ancillary equipment within its boundary;

2. Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the secondary containment system has sufficient excess capacity to contain run-on or infiltration. The additional capacity shall be sufficient to contain precipitation from a 25 year, 24 hour rainfall event;

3. Free of cracks or gaps; and

4. Designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tank or tanks.

Note: Secondary containment systems must be capable of preventing lateral as well as vertical migration of the waste.

(b) Vault systems shall be:

1. Designed and operated to contain 100 percent of the capacity of the largest tank and its ancillary equipment within its boundary;

2. Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the secondary containment system has sufficient excess capacity to contain run-on or infiltration. The additional capacity shall be sufficient to contain precipitation from a 25 year, 24 hour rainfall event;

3. Constructed with chemical resistant water stops in place at all joints, if any;

4. Provided with an impermeable interior coating or lining that is compatible with the stored or treated waste and that shall prevent migration of waste into the construction material of the vault;

5. Provided with a means to protect against the formation and ignition of vapors within the vault, if the waste being stored or treated:

a. Meets the criteria of ignitable waste under s. NR 605.08(2); or

b. Meets the criteria of reactive waste under s. NR 605.08(4), and may form an ignitable or explosive vapor.

6. Provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

(c) Double walled tanks shall be:

1. Designed as an integral structure so that any release from the inner tank is contained by the outer shell.

Note: An integral structure would be an inner tank completely enveloped within an outer shell.

2. Protected, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell; and

3. Provided with a built-in continuous leak detection system capable of detecting a release within 24 hours, or at the earliest practicable time, if the owner or operator can demonstrate to the department, and the department concludes, that the existing detecting technology or site conditions would not allow detection of a release within 24 hours.

Note: The provisions outlined in the Steel Tank Institute's (STI) "Standard for Dual Wall Underground Steel Storage Tanks" may be used as guidelines for aspects of the design of underground steel double walled tanks.

(8) Ancillary equipment shall be provided with secondary containment, such as a trench, jacketing or double walled piping, that meets the requirements of subs. (4) and (5), except for:

(a) Above ground piping, exclusive of flanges, joints, valves and other connections that are inspected visually for leaks on a daily basis;

(b) Welded flanges, welded joints and welded connections, that are inspected visually for leaks on a daily basis;

(c) Sealless or magnetic coupling pumps and sealless valves, that are inspected visually for leaks on a daily basis; and

(d) Pressurized above ground piping systems with automatic shut-off devices that are inspected visually for leaks on a daily basis.

Note: Automatic shutoff devices include excess flow check valves, flow metering shutdown devices and loss of pressure actuated shut-off devices.

(9) The owner or operator may obtain a variance from the requirements of this section if the department finds, as a result of a demonstration by the owner or operator, either: that alternative design and operating practices, together with location characteristics, shall prevent the migration of any hazardous waste or hazardous constituents into the groundwater or surface water at least as effectively as secondary containment during the active life of the tank system, or, that in the event of a release that does migrate to

groundwater or surface water, no substantial present or potential hazard shall be posed to human health or the environment. New underground tank systems may not be exempted from the secondary containment requirements of this chapter.

(a) In deciding whether to grant a variance based upon a demonstration of equivalent protection of ground and surface water, the department will consider:

1. The nature and quantity of the wastes;
2. The proposed alternate design and operation;
3. The hydrogeologic setting of the facility, including the thickness of soils present between the tank system and groundwater, and
4. All other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to groundwater or surface water.

(b) In deciding to grant a variance based upon a demonstration of no substantial present or potential hazard, the department will consider:

1. The potential adverse effects upon groundwater, surface water and land quality, taking into account:
 - a. The physical and chemical characteristics of the waste in the tank system, including its potential for migration,
 - b. The hydrogeological characteristics of the facility and surrounding land,
 - c. The potential for health risks caused by human exposure to waste constituents,
 - d. The potential for damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents, and
 - e. The persistence and permanence of the potential adverse effects;
2. The potential adverse effects of a release on groundwater quality, taking into account:
 - a. The quality and quantity of groundwater and of the direction of groundwater flow,
 - b. The proximity and withdrawal rates of groundwater users,
 - c. The current and future uses of groundwater in the area, and
 - d. The existing quality of groundwater, including other sources of contamination and their cumulative effect upon groundwater quality;
3. The potential adverse effects of a release upon surface water quality, taking into account:
 - a. The quality and quantity of groundwater and the direction of groundwater flow,
 - b. The patterns of rainfall in the region,
 - c. The proximity of the tank system to surface waters,

d. The current and future uses of surface waters in the area and any water quality standards established for those surface waters, and

e. The existing quality of surface water, including other sources of contamination and the cumulative effect upon surface water quality; and

4. The potential adverse effects of a release upon the land surrounding the tank system, taking into account:

a. The patterns of rainfall in the region, and

b. The current and future uses of the surrounding land.

(c) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of sub. (9)(a), at which a release of hazardous waste has occurred from the tank but has not migrated beyond the zone of engineering control, as established in the variance, shall:

1. Comply with the requirements of s. NR 645.12, except sub. (4), and

2. Decontaminate or remove contaminated soil to the extent necessary to:

a. Enable the tank system for which the variance was granted to resume operation with the capability for the detection of releases at least equivalent to the capability it had prior to the release; and

b. Prevent the migration of hazardous waste or hazardous constituents to groundwater or surface water; and

3. If contaminated soil cannot be removed or decontaminated in accordance with subd. 2., comply with the requirements of s. NR 645.17(1)(a)2.

(d) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of sub. (9)(a), at which a release of hazardous waste from the tank has occurred and has migrated beyond the zone of engineering control, as established in the variance, shall:

1. Comply with the requirements of s. NR 645.12(1) to (4), and

2. Prevent the migration of hazardous waste or hazardous constituents to groundwater or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be removed or if groundwater has been contaminated, the owner or operator shall comply with the requirements of s. NR 645.17(1)(a)2.; and

3. If repairing, replacing or reinstalling the tank system, provide secondary containment in accordance with the requirements of subs. (3) to (8) or reapply for a variance from secondary containment and meet the requirements for new tank systems in s. NR 645.08 if the tank system is replaced. The owner or operator shall comply with these requirements even if contaminated soil can be decontaminated or removed and groundwater or surface water has not been contaminated.

(10) The following procedures shall be followed in order to request a variance from the secondary containment requirements:

(a) The department shall be notified in writing by the owner or operator of the intention to conduct and submit a demonstration for a variance from secondary containment as allowed in sub. (9) according to the following schedule:

1. For existing tank systems, at least 24 months prior to the date that secondary containment shall be provided in accordance with sub. (3).

2. For new tank systems, at least 30 days prior to entering into a contract for installation of the tank system.

(b) As part of the notification, the owner or operator shall also submit to the department a description of the steps necessary to conduct the demonstration and a timetable for completing each of the steps. The demonstration shall address each of the factors listed in subs. (9)(a) or (b);

(c) The demonstration for a variance shall be completed and submitted to the department within 180 days after notifying the department of an intent to conduct the demonstration; and

(d) If a variance is granted under this subsection, the department shall require the licensee to construct and operate the tank system in the manner that was demonstrated to meet the requirements of the variance.

(11) All tank systems, until the time that secondary containment that meets the requirements of this section is provided, shall comply with the following:

(a) For underground tanks that cannot be entered, a leak test that meets the requirements of s. NR 645.07(2)(e) or other tank integrity method, as approved by the department, shall be conducted at least annually.

(b) For other than underground tanks that cannot be entered, the owner or operator shall conduct a leak test as in par. (a) or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified, registered professional engineer. The schedule and procedure shall be adequate to detect obvious cracks, leaks and corrosion or erosion that may lead to cracks and leaks. The owner or operator shall remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed. The frequency of these assessments shall be based upon the material the tank and its ancillary equipment were constructed with, the age of the system, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during the previous inspection and the characteristics of the waste being stored or treated.

(c) For ancillary equipment, a leak test or other integrity assessment as approved by the department shall be conducted at least annually.

Note: The practices described in the American Petroleum Institute (API) Publication Guide for Inspection of Refinery Equipment, Chapter XIII, "Atmospheric and Low-Pressure Storage Tanks," 4th edition, 1981, may be used, where applicable, as guidelines for assessing the overall condition of the tank system.

(d) The owner or operator shall maintain on file at the facility a record of the results of the assessments conducted in accordance with pars. (a) to (c).

(e) If a tank system or tank system component is found to be leaking or unfit for use as a result of the leak test or assessment in pars. (a) to (c), the owner or operator shall comply with the requirements of s. NR 645.12.

NR 645.10 GENERAL OPERATING REQUIREMENTS. (1) Hazardous wastes or treatment reagents shall not be placed in a tank system if they could cause the tank, its ancillary equipment or the secondary containment system to rupture, leak, corrode or to otherwise fail.

(2) The owner or operator shall use appropriate controls and practices to prevent spills and overflows from tank or secondary containment systems. These include, at a minimum:

(a) Spill prevention controls, including check valves or dry disconnect couplings;

(b) Overfill prevention controls, including level sensing devices, high level alarms, automatic feed cutoff or bypass to another tank; and

(c) Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.

(3) The owner or operator shall comply with the requirements of s. NR 645.12 if a leak or spill occurs in the tank system.

(4) In accordance with s. NR 630.31(1) and (2), the identity and location of all stored or treated hazardous waste shall be known throughout the entire storage or treatment period.

(5) Storage or treatment of hazardous waste in tank systems shall comply with the requirements of s. NR 630.17.

NR 645.11 INSPECTIONS. (1) The owner or operator shall develop and follow a schedule and procedure for inspecting overfill controls.

(2) The owner or operator shall inspect at least once each operating day:

(a) Overfill and spill control equipment, including waste feed cutoff systems, bypass systems and drainage systems to ensure that they are in good working order;

(b) The above ground portions of the tank system, if any, to detect corrosion or releases of waste;

(c) Data gathered from monitoring and leak detection equipment, including pressure or temperature gauges and monitoring wells to ensure that the tank system is being operated according to its design; and

(d) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system, to detect erosion or signs of releases of hazardous waste.

Note: Signs of release of hazardous waste would include wet spots and dead vegetation.

(3) The owner or operator shall inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:

(a) The proper operation of the cathodic protection system shall be confirmed within six months after initial installation and annually thereafter; and

(b) All sources of impressed current shall be inspected or tested or both, as appropriate, at least bimonthly.

Note: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP-02-85) - Control of External Corrosion on Metallic Buried, Partially Buried or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in maintaining and inspecting cathodic protection systems.

(4) The owner or operator shall document in the operating record of the facility each inspection of those items in subs. (1) to (3).

NR 645.12 RESPONSE TO LEAKS OR SPILLS AND DISPOSITION OF LEAKING OR UNFIT FOR USE TANK SYSTEMS. A tank system or secondary containment system from which there has been a leak or spill or which is unfit for use, shall be removed from service immediately, and the owner or operator shall satisfy the following requirements:

(1) **CESSATION OF USE; PREVENT FLOW OR ADDITION OF WASTES.** The owner or operator shall immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.

(2) **REMOVAL OF WASTE FROM TANK SYSTEM OR SECONDARY CONTAINMENT SYSTEM.** (a) If the release was from the tank system, the owner or operator shall, within 24 hours after detection of the leak or, if the owner or operator demonstrates to the department that it is not possible within 24 hours, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of hazardous waste into the environment and to allow inspection and repair of the tank system to be performed.

(b) If the material released was to a secondary containment system, all released material shall be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment.

(3) **CONTAINMENT OF VISIBLE RELEASES TO THE ENVIRONMENT.** The owner or operator shall immediately conduct a visual inspection of the release and, based upon that inspection:

(a) Prevent further migration of the leak or spills to soils or to surface water; and

(b) Remove, and properly dispose of, any visible contamination of the soil or surface water.

(4) **NOTIFICATION REPORTS.** (a) Any release to the environment, except as provided in par. (b), shall be reported to the department within 24 hours of its detection. If the release has been reported pursuant to s. 144.76, Stats, that report will satisfy this requirement.

Note: 40 CFR 302 may require the owner or operator to notify the national response center of certain releases.

(b) A leak or spill of hazardous waste is exempted from the requirements of this subsection if it is:

1. Less than or equal to the quantity of 453.6 grams (1.0 pound), and

2. Immediately contained and cleaned up.

(c) Within 30 days of detection of a release to the environment, the owner or operator shall submit a report to the department containing the following information:

1. Likely route of migration of the release;
2. Characteristics of the surrounding soil, including soil composition, geology, hydrogeology and climate;
3. Results of any monitoring or sampling conducted in connection with the release, if available. If sampling or monitoring data relating to the release are not available within 30 days, these data shall be submitted to the department as soon as they become available.
4. Proximity to downgradient drinking water, surface water and populated areas; and
5. Description of response actions taken or planned.

(5) PROVISION OF SECONDARY CONTAINMENT, REPAIR OR CLOSURE. (a) Unless the owner or operator satisfies the requirements of pars. (5)(b) to (d), the tank system shall be closed in accordance with s. NR 645.17.

(b) If the cause of the release has not damaged the integrity of the tank system, the owner or operator may return the tank system to service as soon as the released waste is removed and repairs, if necessary, are made.

(c) If the cause of the release was a leak from the tank into the secondary containment system, the tank system shall be repaired prior to returning the tank system to service.

(d) If the source of the release was a leak to the environment from a tank system component without secondary containment, the owner or operator shall provide the tank system component from which the leak occurred with secondary containment that satisfies the requirements of s. NR 645.09 before it may be returned to service, unless the source of the leak is an above ground portion of a tank system that can be inspected visually. If the source is an above ground tank system component that can be inspected visually, the tank system component shall be repaired and may be returned to service without secondary containment as long as the requirements of sub. (6) are satisfied. If a tank system component is replaced to comply with the requirements of this paragraph, that tank system component shall satisfy the requirements for new tank systems or tank system components in ss. NR 645.08 and 645.09. Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection, including the bottom of an inground or onground tank, the entire tank system component shall be provided with secondary containment in accordance with s. NR 645.09 prior to being returned to service.

(6) CERTIFICATION OF EXTENSIVE REPAIRS. If the owner or operator has repaired a tank system in accordance with sub. (5), and the repair has been extensive, the tank system may not be returned to service unless the owner or operator has obtained a certification by an independent, qualified, registered professional engineer in accordance with s. NR 680.05(2)(d), that the repaired tank system is capable of handling hazardous wastes without release for the intended life of the tank system. This certification shall be submitted to the department within 7 days after returning the tank system to use.

Note: Extensive repair may include but is not limited to installation of an internal liner or the repair of a ruptured tank system vessel.

Note: The department may, on the basis of any information received that there is or has been a release of hazardous waste or hazardous constituents into the environment, issue an order under s. 144.735, Stats., requiring corrective action under ch. NR 635 or other response as deemed necessary to protect human health or the environment.

Note: See s. NR 630.15(3) for the requirements necessary to remedy a failure. Also, s. 144.76, Stats. and 40 CFR 302 may require the owner or operator to notify the Wisconsin division of emergency government and the national response center of certain releases.

NR 645.13 SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE. (1) Ignitable or reactive waste shall not be placed in tank systems, unless:

(a) The waste is treated, rendered or mixed before or immediately after placement in the tank system so that:

1. The resulting waste, mixture or dissolved material no longer meets the criteria of ignitable or reactive waste under s. NR 605.08(2) and (4), and

2. The general requirements for ignitable, reactive or incompatible wastes in s. NR 630.17(2) are complied with; or

(b) The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or

(c) The tank system is used solely for emergencies.

(2) The owner or operator of a facility where ignitable or reactive waste is stored or treated in a tank system shall comply with the requirements for the maintenance of protective distances between the waste boundary and any public ways, streets, alleys or an adjoining property line that may be built upon as required in ch. IND 8.

NR 645.14 SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES. (1) Hazardous waste may not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material unless s. NR 630.17(2) is complied with.

(2) Incompatible wastes, or incompatible wastes and materials, shall not be placed in the same tank system unless s. NR 630.17(2) is complied with.

NR 645.15 WASTE ANALYSIS AND TRIAL TESTS. (1) In addition to performing the waste analysis required by s. NR 630.12, the owner or operator shall, whenever a tank system is to be used to store a hazardous waste that is substantially different from waste previously treated or stored in that tank system:

(a) Conduct waste analyses and trial tests, such as bench scale or pilot plant scale tests; or

(b) Obtain written, documented information on similar waste under similar operating conditions to show that the proposed storage or treatment will meet the requirements of s. NR 645.10(1).

NR 645.16 SMALL STORAGE FACILITY REQUIREMENTS. (1) GENERAL. The feasibility report and plan of operation report submittal requirements of sub. (3) may be met in lieu of the requirements of s. NR 645.06(1) and (2) for hazardous waste storage facilities that have the following characteristics:

(a) Hazardous waste storage is entirely in an enclosed and roofed structure having access limited or restricted to employees or other authorized personnel;

(b) Hazardous waste storage is confined to a floor area of 1500 sq. ft. or less;

(c) Hazardous waste storage in tank systems and containers does not exceed 10,000 gallons at any time;

(d) Hazardous waste is stored generally for the purpose of accumulating a sufficient quantity for an economical transfer for treatment or disposal; and

(e) Hazardous waste is stored in above ground tank systems or onground tank systems which meet the construction and operational requirements of ss. NR 645.05, 645.07 to 645.15 and 645.17.

(2) EXEMPTIONS. (a) Except as provided in subd. 3., the owner or operator of a hazardous waste small storage facility is exempt from the feasibility and plan of operation report requirements in sub. (3) for that facility, provided that:

1. The owner or operator has been issued a permit for storage of hazardous waste at the facility under 42 USC 6925(c); and

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

2. The facility is in compliance with the permit required under subd. 1;

3. If the facility only stores wastes that do not contain free liquids, the facility shall obtain written approval of the information required under sub. (3)(a)7. This information shall be submitted in accordance with s. NR 680.05(1)(b) and (c).

(b) Any person exempt from sub. (3) under par. (a) of this subsection shall obtain an operating license as required under s. NR 680.31.

(3) FEASIBILITY AND PLAN OF OPERATION REPORT. (a) Any person proposing to establish, construct, expand or obtain an initial operating license under s. NR 680.31 for a hazardous waste small storage facility shall first obtain written approval of a feasibility and plan of operation report from the department, unless exempted under sub. (2). The feasibility and plan of operation report shall be submitted in accordance with s. 144.44, Stats., and ss. NR 680.05, 680.06 and 680.10, and shall at a minimum, contain the following information:

1. A narrative description of the area proposed for storage of hazardous waste;

2. A general floor plan of the storage area and any pertinent adjacent areas;

3. A description of any existing or proposed fire prevention or control systems, communication equipment and security systems or arrangements at the facility;

4. A description of the hazardous or solid wastes, that will be stored at the proposed facility, along with projected volumes or weights and accumulation times;

5. An evaluation of the storage area's capability of containing spills;

6. A description of any past experience with storage of hazardous wastes at the facility;

7. For tank system storage, a description of the secondary containment and detection of release systems to demonstrate compliance with s. NR 645.09, including:

- a. Basic design parameters, dimensions and materials of construction.
- b. How the design promotes drainage or how tanks are kept from contact with standing liquids in the secondary containment system.
- c. Capacity of the secondary containment system relative to the number and volume of the tanks.
- d. Provisions for preventing run-on.
- e. How accumulated liquids can be analyzed and removed to prevent overflow;

8. For tank system storage, a description of the design and operation of the tank system which demonstrate compliance with ss. NR 645.05, 645.07, 645.08 and 645.10 to 645.15 including:

- a. References to design standards or other available information used, or to be used, in the design and construction of the tank.
- b. A description of design specifications, including identification of construction and lining materials and the pertinent characteristics such as corrosion and erosion resistance.
- c. Tank dimension, capacity and shell thickness.
- d. A diagram of piping, instrumentation and process flow.
- e. Description of feed systems, safety cutoff, bypass systems and pressure controls, such as vents;

9. Storage and waste management procedures, including a description of how s. NR 630.17(2) will be complied with to meet the applicable requirements of s. NR 645.13 and 645.14;

10. An explanation of recordkeeping and tank labeling procedures;

11. A contingency plan, as required by ss. NR 630.21 and 630.22(1) and (2);

12. A plan sheet, sketch or other data which demonstrates compliance with requirements for the maintenance of protective distances between the waste boundary and any public ways, streets, alleys or an adjoining property line that may be built upon as required in ch. IND 8;

13. A closure plan for the facility, as required by ss. NR 685.05 and 645.17; and

14. The most recent closure cost estimate for the facility prepared in accordance with s. NR 685.07(2).

(b) Within 60 days after a feasibility and plan of operation report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility and plan of operation report is complete by determining whether or not the minimum requirements in par. (a) have been met. Additional information may be required of the applicant after a determination that the report is complete only if the department establishes that a detailed review of the report indicates that feasibility cannot be determined or the report is insufficient in the absence of additional information.

(c) If no hearing has been conducted under s. 144.44, Stats., the department shall issue the final determination for the feasibility and plan of operation report within 60 days after the 45 days notice period required under s. 144.44(2)(l) and (m), Stats., has expired. If an informational hearing is conducted under s. 144.44(2g), Stats., the department shall issue a final determination for the feasibility and plan of operation report within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 144.44(2r), Stats., a final determination for the feasibility and plan of operation report shall be issued within 90 days after the hearing is adjourned.

(d) The department may conduct a site visit during the plan review period.

(e) Based on the site visit under par. (d), the department may require additional information for the feasibility and plan of operation report as provided in ss. NR 660.08, 660.09 and 660.10.

(4) OPERATION. A storage facility approved under this section shall meet all of the substantive and operating requirements of ss. NR 645.05, 645.07 and 645.09 to 645.15.

(5) CLOSURE. Closure requirements specified under ss. NR 685.05 and 645.17 are applicable to small storage facilities approved under this section.

NR 645.17 CLOSURE AND LONG TERM CARE. (1) CLOSURE. Unless specifically exempted, the owner or operator of a facility that treats or stores hazardous waste shall meet the requirements specified in s NR 685.05 and the following requirements for each tank system:

(a) The owner or operator of a facility that stores or treats hazardous waste in tank systems shall:

1. At closure, remove or decontaminate all waste residues, contaminated secondary containment system components, such as liners, etc., contaminated soils, structures and equipment that are contaminated with hazardous waste, and manage them as hazardous waste, unless s. NR 605.04(3) applies. The closure plan, closure activities, cost estimates for closure and financial responsibility for tank systems shall meet all of the requirements specified in ss. NR 600.03, 685.02, 685.05, 685.06, 685.07 and 685.08.

2. If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in subd. 1. of this paragraph, then the owner or operator shall close the tank system and perform long-term care in accordance with the closure and long-term care requirements that apply to landfills in ss. NR 660.13(10), 660.16 and 660.17. In addition, for the purposes of closure, long-term care and financial responsibility, the tank system is then considered to be a landfill, and the owner or operator shall meet all of the requirements for landfills specified in ss. NR 600.03, 685.02, 685.05, 685.06, 685.07 and 685.08.

3. If an owner or operator has a tank system that does not have secondary containment that meets the requirements of ss. NR 645.09(4) to (8), and has not been granted a variance from the secondary containment requirements in accordance with s. NR 645.09(9), then:

a. The closure plan for the tank system shall include both a plan for complying with subd. 1. and a contingent plan for complying with subd. 2.

b. A contingent long-term care plan for complying with subd. 2. shall be prepared and submitted as part of the feasibility and plan of operation report.

c. The cost estimates calculated for closure and long-term care shall reflect the costs of complying with the contingent closure plan and contingent long-term care plan, if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under subd. 1.

d. Financial assurance shall be based upon the cost estimates in subpar. c.

e. For the purposes of the contingent closure and long-term care plans, the tank system is considered to be a landfill, and the contingent plans shall meet all of the closure, long-term care and financial responsibility requirements for landfills under ss. NR 600.03, 660, 685.05, 685.06, 685.07 and 685.08.

(b) The owner or operator of a facility that treats hazardous waste in tank systems shall, at completion of closure, remove all hazardous waste and hazardous waste residues, including, but not limited to, ash and sludges, from the treatment process or equipment, discharge control equipment and discharge confinement structures. The department may require monitoring of groundwater or surface waters, if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

(2) FINAL DISPOSAL. Final disposal of hazardous waste may not be permitted at a hazardous waste storage or treatment facility, unless the facility has a separate license for disposal.

(3) REMOVAL OF UNDERGROUND TANK SYSTEM. Prior to removal of underground tank systems, the owner or operator shall comply with the requirements of sub. (1) and undertake the following successive steps:

(a) Disconnect and remove insofar as possible the inlet, outlet, gauge and vent lines;

(b) Cap or plug open ends of remaining lines; and

(c) Close all openings in the tank, except for a 1/8 inch hole for venting, with pipe plugs before the tank is removed from the ground.

NR 650 - (RESERVED)

NR 655 - WASTE PILE STANDARDS

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7	NR 655.12 - Special Requirements for Hazardous Wastes F020, F021, F022, F023, F026 and F027

NR 655.01 PURPOSE. The purpose of this chapter is to specify the requirements that apply to hazardous waste piles.

NR 655.02 APPLICABILITY. Except as otherwise provided, this chapter applies to owners and operators of storage or treatment facilities that store or treat hazardous waste in waste piles. This chapter does not apply to solid waste facilities that store or treat only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 655.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 655.04 EXEMPTIONS. (Reserved)

NR 655.05 GENERAL. (1) Except as otherwise provided in s. NR 630.04, no person may maintain or operate a hazardous waste facility that stores or treats hazardous waste in waste piles unless the person has obtained an interim license, operating license, variance or waiver from the department, in accordance with the requirements of s. NR 600.09 or ch. NR 680.

(2) Unless specifically exempt under s. NR 630.04, the owner or operator of a waste pile shall meet the design, construction and operational requirements in ss. NR 655.07(4) and (5), 655.10, 660.11, 660.12 and 660.13 and the monitoring requirements in ch. NR 635. The department may, in accordance with s. NR 680.04, exempt the owner or operator of a waste pile from the requirements of s. NR 660.13, except s. NR 660.13(3) and ch. NR 635 if the owner or operator of the waste pile proposes to design, construct, operate and monitor the waste pile in accordance with the following minimum practices:

- (a) The waste pile shall be located inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated.
- (b) Liquids or materials containing free liquids are not placed in the pile.
- (c) The pile is protected from surface water run-on by the structure or in some other manner.
- (d) The pile is designed and operated, by means other than wetting, to prevent dispersal of waste by wind.
- (e) The pile may not generate leachate through decomposition or other reactions.
- (f) The pile, including its underlying liner shall be located entirely above the seasonal high groundwater table.
- (g) The pile shall be underlain by a liner that is designed, constructed and installed to prevent any migration of wastes out of the pile into the liner or adjacent subsurface soil or groundwater or surface water at any time during the active life of the waste pile, including the closure period. The liner shall be:
 - 1. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients including static head and external hydrogeologic forces, physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation and the stress of daily operation;
 - 2. Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement compression or uplift; and
 - 3. Installed to cover all surrounding earth likely to be in contact with the waste or leachate.
- (h) The wastes in the pile shall be removed periodically, and the liner shall be inspected for deterioration, cracks or other conditions that may result in leaks. The frequency of inspection shall be specified in the inspection plan required in s. NR 630.15 and shall be based on the potential for the liner to crack or otherwise deteriorate under the conditions of operation, such as waste type, rainfall, loading rates and subsurface stability.
- (i) The liner shall be of sufficient strength and thickness to prevent failure due to puncture, cracking, tearing or other physical damage from equipment used to place waste in or on the pile or to clean and expose the liner surface for inspection.
- (j) If deterioration, a crack or other condition is identified that is causing or could cause a leak, the owner or operator shall:
 - 1. Notify the department of the condition in writing within 7 days after detecting the condition; and
 - 2. Repair or replace the liner and obtain a certification from a registered professional engineer that, to the best of the engineer's knowledge and opinion, the liner has been repaired and leakage will not occur; or if a detection monitoring program pursuant to ch. NR 635 has already been established in the plan of operation approval to be complied with only if a leak occurs, begin to comply with that program and any other applicable requirements of ch. NR 635 within a period of time specified in the plan of operation approval.

(k) The department shall specify in the plan of operation approval all design and operating practices that are necessary to ensure that the requirements of this subsection are satisfied.

NR 655.06 FEASIBILITY AND PLAN OF OPERATION REPORT. Unless specifically exempted in s. NR 630.04, no person may establish, construct or expand a hazardous waste pile or be issued an initial operating license under ch. NR 680 without first obtaining written approval of a feasibility and plan of operation report from the department. The purpose of the feasibility and plan of operation report is to determine whether the site has potential for use as a hazardous waste storage facility and to identify and address any operating conditions which are necessary for the proper operation of the facility. Favorable feasibility determination and plan approval under this section does not guarantee final licensure. The feasibility report and plan of operation report for a waste pile shall be submitted in accordance with the requirements of s. 144.44, Stats., and ss. NR 680.05(1) and 680.06(3) and shall contain the applicable material required by s. NR 660.09(1)(a) to (o). The applicant is encouraged to submit an initial site report as outlined in s. NR 660.08(2). Feasibility and plan of operation report requirements for small storage facilities, that meet the criteria in s. NR 640.07(1), are specified in s. NR 640.07(3). The feasibility report shall also contain the following information:

(1) For waste pile storage, detailed plans and an engineering report describing how the requirements of ss. NR 655.05, 655.06(2), 655.07 and 655.08 shall be met, and if applicable, of how ss. NR 655.05 and 655.08 shall be met if an exemption from certain requirements of ss. NR 660.13 and ch. NR 635 is sought.

(2) The plan of operation shall also contain the following information:

(a) Sketches, drawings or data demonstrating compliance with the buffer zone requirements of s. NR 655.10(1)(a).

(b) How wind dispersal of particulate matter shall be controlled in order to meet the requirements of s. NR 655.07(5);

(c) How s. NR 655.09(2) shall be complied with if incompatible wastes or materials are to be managed; and

(d) The details of the process carried out and equipment used if treatment occurs in or on the pile, including the nature and quality of the residuals.

NR 655.07 DESIGN AND OPERATING REQUIREMENTS. (1) In accordance with s. NR 630.31(1) and (2), the identity and location of all stored hazardous waste shall be known throughout the entire storage period.

(2) The pile shall be underlain by a liner that is designed, constructed and installed to prevent any migration of wastes out of the pile into the liner or adjacent subsurface soil or groundwater or surface water at any time during the active life of the waste pile including the closure period. The liner shall be:

(a) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients including static head and external hydrogeologic forces, physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation and the stress of daily operation;

(b) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement compression or uplift; and

(c) Installed to cover all surrounding earth likely to be in contact with the waste.

(3) The waste pile shall have a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 24-hour, 25-year storm.

(4) Containment. If leachate or run-off from a pile is a hazardous waste then:

(a) The pile shall be placed on an impermeable base that is compatible with the waste under the conditions of storage, run-on shall be diverted away from the pile, and any leachate and run-off from the pile shall be collected and managed as a hazardous waste; or

(b) The pile shall be protected from precipitation by some other means and no liquids or wastes containing free liquids may be placed in the pile.

(5) Protection from wind. If a pile containing hazardous waste may be subject to dispersal by wind, the owner or operator of the facility shall cover the pile so that wind dispersal does not occur.

(6) During construction, installation and testing of the primary liner, the secondary liner, the drainage layers, the leachate collection systems and all 3 phases of the final cover system, a registered professional engineer shall be present on the site at all times. It shall be the responsibility of the professional engineer to ensure that all construction, documentation and testing are carried out in accordance with chs. NR 600 to 685 and the plan of operation approval.

NR 655.08 MONITORING AND INSPECTION. (1) During construction or installation, liners, except existing portions of piles exempt from s. NR 655.07(2), and cover systems shall be inspected for uniformity, damage and imperfections. Immediately after construction or installation:

Note: Examples of cover systems are membranes, sheets or coatings. Examples of imperfections are holes, cracks, thin spots or foreign materials.

(a) Synthetic liners and covers shall be inspected to ensure tight seams and joints and the absence of tears, punctures or blisters; and

(b) Soil-based and admixed liners and covers shall be inspected for imperfections including lenses, cracks, channels, root holes or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(2) While a waste pile is in operation, it shall be inspected weekly and after storms to detect evidence of any of the following:

(a) Deterioration, malfunctions or improper operation of run-on and run-off control systems;

(b) Proper functioning of wind dispersal control systems, where present; and

(c) The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

NR 655.09 SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE. Ignitable or reactive waste may not be placed in a waste pile unless:

(1) The waste is treated, rendered or mixed before or immediately after placement in the pile so that:

(a) The resulting waste, mixture or dissolution of material no longer meets the criteria of ignitable or reactive waste under s. NR 605.08(2) or (4); and

(b) The precautions contained in s. NR 630.17(2) are complied with; or

(2) The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

NR 655.10 SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES. (1) Incompatible wastes or materials may not be placed in the same waste pile unless s. NR 630.17(2) is complied with.

(a) A pile of hazardous waste that is incompatible with any waste or other material stored nearby in other containers, piles, open tanks or surface impoundments shall be separated from the other materials, or protected from them by means of a dike, berm, wall or other device.

(b) Hazardous waste may not be piled on the same area where incompatible wastes or materials were previously piled, unless the area has been decontaminated sufficiently to ensure compliance with s. NR 630.17(2).

(2) In addition to the waste analysis required by s. NR 630.12, the owner or operator shall analyze a representative sample of waste from each incoming waste shipment before adding the waste to a existing pile if the compatibility of the incoming waste with the existing pile is not known. Owners and operators of waste piles shall accept only wastes that are compatible with each other and to the pile to which they are to be added. The analysis conducted shall be capable of differentiating between the types of hazardous waste the owner or operator places in piles, so that mixing of incompatible wastes does not inadvertently occur. The analysis shall include a visual comparison of color and texture.

NR 655.11 CLOSURE AND LONG TERM CARE. (1) Final disposal of hazardous waste in a waste pile may not be permitted at a hazardous waste storage facility, unless the facility has a separate license for disposal.

(2) The owner or operator of a facility which treats or stores hazardous waste in waste piles shall comply with the following:

(a) The owner or operator shall, at completion of final or partial closure, remove all waste residues, contaminated containment system components, liners, contaminated subsoils and structures and equipment contaminated with hazardous waste, hazardous waste residues or leachate, and manage them as a hazardous waste in accordance with the requirements of chs. NR 600 to 685, unless s. NR 605.04(3) applies. The department may require monitoring of ground or surface water if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

(b) The owner or operator may propose to leave some contaminated subsoils in place in lieu of removing all of this material as required in par. (a). Proposals shall be submitted to the department for approval prior to completion of closure, as a modification to the closure plan approval in accordance with s.

NR 685.05. The owner or operator shall also submit a post-closure plan that meets the requirements of s. NR 685.06 with the proposal. The department shall consider proposals on a case-by-case basis. If any contaminated subsoil is approved by the department to remain in place, the department shall require that the owner or operator comply with the applicable requirements for closure, monitoring and long term care under ss. NR 660.14, 660.15, 660.16, 660.17 and 685.06. The department may not approve proposals unless it determines that not all contaminated subsoils can be practicably removed or decontaminated. The department may compare the costs and relative environmental and public health risks of removal or decontamination versus leaving contaminated subsoils in place when determining which subsoils are practicable to remove or decontaminate. The department may require some contaminated subsoils to be removed or decontaminated at the same time other contaminated subsoils are approved to remain in place, depending on the department's determination of which subsoils are practicable to remove or decontaminate. The department shall consider, at a minimum, the following criteria when making a determination on which subsoils can be practicably removed or decontaminated:

1. The depth of contamination;
2. The depth to the nearest aquifer;
3. Current site uses;

Note: For example, excavations next to certain buildings or structures may cause a structural failure.

4. The feasibility of decontamination technologies for the type of contamination present;
5. The soil types present; and
6. The feasibility of excavation technologies.

(c) The department may require that the owner or operator comply with the applicable requirements for closure, monitoring and long-term care under ss. NR 660.14, 660.15, 660.16, 660.17 and 685.06 if the department determines that hazardous waste or hazardous waste constituents have been discharged at the facility, where compliance with the requirements is necessary to protect public health, safety or welfare or the environment, even if the owner or operator chooses to remove all contaminated subsoils and complies with par. (a).

(d)1. The owner or operator of a waste pile that does not comply with the liner requirements of s. NR 655.07(2) and is not exempt from them in accordance with s. NR 655.05(2), shall:

a. Include in the closure plan for the pile under s. NR 685.05 both a plan for complying with par. (a) and a contingent plan for complying with par. (b) in case not all contaminated subsoils can be practicably removed at closure; and

b. Prepare a contingent long term plan under s. NR 685.06 for complying with par. (b) in case not all contaminated subsoils can be practicably removed at closure.

2. The cost estimates calculated under s. NR 685.07 for closure and long term care of a pile subject to this paragraph shall include the cost of complying with the contingent closure plan and the contingent long term care plan, but are not required to include the cost of expected closure under paragraph (a).

NR 655.12 SPECIAL REQUIREMENTS FOR HAZARDOUS WASTES F020, F021, F022, F023, F026 and F027. (1) Hazardous Wastes FO20, FO21, FO22, FO23, F026 and FO27 may not be placed in a waste pile unless the owner or operator operates the waste pile in accordance with a management plan for these

wastes that is approved by the department pursuant to the standards set out in this section and in accord with all other applicable requirements in chs. NR 600 to 685. The factors to be considered are:

(a) The volume and physical and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(b) The attenuative properties of underlying and surrounding soils or other materials;

(c) The mobilizing properties of other materials co-disposed with these wastes; and

(d) The effectiveness of additional treatment, design or monitoring techniques.

(2) The department may determine that additional design, operating and monitoring requirements are necessary for waste piles managing hazardous wastes FO20, FO21, FO22, FO23, FO26 and FO27 in order to reduce the possibility of migration of these wastes to groundwater, surface water or air so as to protect human health and the environment.

NR 660 - LANDFILL AND SURFACE IMPOUNDMENT STANDARDS

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NR 660.01 PURPOSE. The purpose of this chapter is to specify the requirements and standards that apply to hazardous waste landfills and surface impoundments.

NR 660.02 APPLICABILITY. Except as otherwise provided, this chapter applies to owners and operators of facilities that treat, store or dispose of hazardous waste in landfills or surface impoundments. This chapter does not apply to solid waste landfills and surface impoundments that receive only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 660.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 660.04 EXEMPTIONS. Except as specifically provided, the requirements of this chapter do not apply to the owners and operators of the following facilities:

- (1) A surface impoundment which has its discharges regulated under ch. 147, Stats., is excluded from the requirements of this chapter, if the owner or operator complies with ss. NR 630.04(3) and 660.19.
- (2) A solid waste disposal facility that is licensed under chs. NR 500 to 522 if the only hazardous waste the facility disposes of is excluded from regulation under s. NR 600.04 and chs. NR 630 to 685 by s. NR

610.05(1) and the facility has been approved under s. NR 506.15 to accept small quantities of hazardous waste.

(3) Facilities used for the disposal of metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats., except where requirements in this chapter are referenced in the rules adopted by the department under s. 144.435(1m), Stats.

Note: Metallic mining wastes are regulated under ch. NR 182.

(4) A facility operating under an interim license, except to the extent that the requirements of this chapter are listed in ss. NR 680.21(4) and (5) and 680.22.

NR 660.05 GENERAL. Except as otherwise provided in s. NR 660.04, no person shall operate or maintain a hazardous waste landfill or surface impoundment unless the person has obtained an interim license, operating license, variance or waiver from the department, in accordance with the requirements of ch. NR 680.

NR 660.06 LOCATION CRITERIA. (1) In addition to general site selection criteria in s. NR 630.18, no person may establish, construct, operate or maintain a hazardous waste landfill or surface impoundment, or permit the use of property for a hazardous waste landfill or surface impoundment, within the following areas:

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

(b) 300 feet of a navigable river or stream.

(c) 1,000 feet of the nearest edge of the right-of-way of any state trunk highway, interstate or federal aid primary highway or the boundary of any public park, unless the site is screened by natural objects, plantings, fences or other appropriate means so as to not be visible from the highway or park.

(d) an area where the department after investigation finds that there is a reasonable probability that disposal of hazardous waste within the area shall have a detrimental effect on any surface water or groundwater quality or shall cause a violation of groundwater standards adopted under ch. NR 140.

(e) 10,000 feet of any airport runway used or planned to be used by turbojet aircraft or within 5,000 feet of any airport runway used only by piston type aircraft or within other areas where a substantial potential bird hazard to aircraft may exist, unless a waiver is granted by the federal aviation administration.

(f) 1,200 feet of any public or private water supply well as specified in ch. NR 112.

(g) Areas which do not meet the following requirements:

1. Consist of clay soils which extend at least 30 feet beneath the proposed base of the facility.

2. Contain no extensive deposits of coarse grained soils within the clay soils. This shall be determined based on an interpretation of soil stratigraphy after consideration is given to the deposition and origin of the deposits and their engineering classification under the unified soil classification system specified in ASTM standard D-2487-69 (1975).

Note: The publication containing this standard may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publication containing this standard is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

3. Have a median infield permeability of 1×10^{-6} cm/sec as determined by single well response tests.

(2) The active portion of a facility shall be located a minimum of 200 feet away from the property line of the facility.

(3) An applicant for an initial operating license or for approval of the expansion of an existing hazardous waste landfill or surface impoundment shall demonstrate to the department that the proposed site will comply with all of the locational standards of this section for which no exemption has been granted. No exemptions from compliance with sub. (1)(d) shall be granted by the department. Pursuant to s. NR 680.04, exemptions from compliance with sub. (1)(a), (b), (c), (e), (f), (g) and (h) may be granted only upon demonstration by the applicant of circumstances which warrant an exemption. The factors which will be considered by the department in determining whether or not to grant an exemption include waste types and characteristics, site or facility design and operational considerations, availability or other environmentally suitable alternatives, compliance with other state and federal regulations and the public health, safety and welfare.

NR 660.07 INITIAL SITE INSPECTION. Unless specifically exempted in s. NR 660.04, any person proposing to establish a hazardous waste landfill or surface impoundment or expand an existing facility shall contact the department to arrange for an initial site inspection.

NR 660.08 INITIAL SITE REPORT. (1) Any person, prior to submitting a feasibility report, may submit an initial site report to the department in accordance with ss. NR 680.05(1) and 680.06(3). The department shall review and respond to the initial site report within 65 business days of receipt. A favorable opinion under this section does not guarantee a favorable determination of site feasibility.

Note: the purpose of submitting this report is to obtain a preliminary opinion from the department on the potential of the site for development and the advisability of spending additional time and funds to prepare a feasibility report.

(2) An initial site report may be as detailed as the applicant chooses to make it. If a report is submitted, the report shall include the following information. If the following information, with the exception of par. (e), is not submitted, the department cannot guarantee that an opinion on the feasibility of the site can be given.

(a) General site information. Identify project title; name, address and phone number of primary contact persons for department correspondence; the consultant; present property owner; proposed facility owner and operator; site location by quarter section; total acreage of property and proposed licensed acreage; proposed site life and design capacity; municipalities, industries and collection and transportation agencies to be served; estimated waste types and characteristics and estimated weekly quantities to be disposed; anticipated base grades; preliminary design configuration; anticipated covering frequency and mode of operation.

(b) Regional geotechnical information. Include a discussion of the regional site setting to provide a basis for comparison and interpretation to site specific information obtained through field investigations and for analyzing siting and environmental considerations. Limit the discussions to information available from publications, although some field verification and updating may be desirable. Supplement discussions by maps and cross-sections may be included. Address the following items:

1. Topography, including predominant topographic features.
2. Hydrology, including surface water drainage patterns and significant hydrologic features such as surface waters, springs, drainage basins and divides and wetlands.
3. Geology, including the nature and distribution of bedrock and unconsolidated deposits.
4. Hydrogeology, including depth to groundwater, groundwater flow direction, recharge and discharge areas, groundwater divides, aquifers and the identification of the aquifers use by public and private wells beneath the facility property and within ¼ mile of the proposed site.
5. Ground and surface water quality as described in available regional literature.
6. Climatology.
7. Identification of adjacent landowners.
8. Zoning.
9. Present land uses with particular emphasis on known recreational, historic or archaeological areas.
10. Present or proposed access roads and weight restrictions.
11. Factors identified in the locational criteria in s. NR 660.06.

(c) Site specific geotechnical information:

1. Perform field investigations to define the site specific topography, soil types and depth to bedrock and groundwater. Include the following:

a. A topographic survey of the area. On this map show the proposed fill area, property boundaries, proposed site boundary, soil borings performed and wells installed. The minimum scale should be one inch = 500 feet with the contour interval sufficient to show site relief. It is recommended that this map consist of a blowup of a USGS map, 7½ or 15-minute topographical, with supplemental information added as appropriate.

b. Soil borings extending to bedrock, unless depth to bedrock is 100 feet or more below the ground surface, or 30 feet below the anticipated facility base grade, whichever is greater. The borings shall be distributed in a grid pattern throughout the area. At least one boring per 5 acres with a minimum of 5 borings is required.

c. Soil borings shall be converted to water table observation wells and well nests in accordance with the following schedule:

- 1) Three wells nests consisting of a water table observation well and a piezometer in the unconsolidated material.
- 2) One piezometer within the competent bedrock at one of the well nest locations.

d. Analyze each significant soil layer encountered during boring investigations for grain-size distribution and classify according to the unified soil classification system.

e. At least one laboratory permeability test shall be conducted for each significant soil layer above and below the water table. Single well response tests shall be performed on all on-site wells.

f. A summary of the groundwater monitoring data obtained under ss. NR 635.12 and 635.16, where applicable.

2. Summarize the results of the subsurface investigations utilizing a series of geologic sections which connect the soil borings performed. In each section show present topography, soil borings, soil classification and other properties, interpreted soil stratigraphy, bedrock, well construction permeability results and stabilized water level readings for each well.

3. Prepare a water table contour map based on stabilized water level readings. The topographic map shall be used as a base for this map.

4. A summary of all groundwater, gas, surface water and physical features monitoring previously performed for the facility, including all monitoring required under chs. NR 600 to 685.

5. A description of any plume of contamination that has entered the groundwater from any treatment, storage or disposal unit at the time the initial site report is submitted that:

a. Delineates the extent of the plume on the map required under subd. 1.a.; and

b. Identifies the concentration of each hazardous constituent in table VI of ch. NR 605 - Appendix IV, throughout the plume or identifies the maximum concentrations of each table VI of ch. NR 605 - Appendix IV hazardous constituent in the plume.

(d) Data analysis. From the results of the field investigations, regional geotechnical information and land use information, analyze and make preliminary conclusions and recommendations on site development. Include a discussion of the potential for the site to meet the locational requirements in s. NR 660.06 and potential limitations on site development.

(e) Preliminary liner assessment. 1. One or more potential alternatives for a primary liner meeting the requirements of s. NR 660.13(10)(a) shall be identified.

2. A description of the proposed testing program for the primary liner shall be submitted which outlines the proposed procedures for performing the tests required in s. NR 660.09(1)(g) and the number of samples necessary to obtain representative results. All proposed testing shall meet or exceed the requirements of the national sanitation foundation standard 54 for flexible membrane liners. The definitions of terms or words in section 2 of the national sanitation foundation standard 54 for flexible membrane liners shall apply to terms or words used in this subdivision where a dictionary definition does not exist or is not applicable. The description of the proposed testing program shall include:

a. Liner compatibility including:

1) The effect of soil pH.

2) The effect of chemical contaminants within the soil.

3) Short-term testing to evaluate the ability of the liners to contain the waste and waste leachate.

4) Long-term testing including samples of the delivered liner and actual field constructed seams.

b. Susceptibility to attack by bacteria and fungi.

c. Physical suitability including:

1) Tear resistance.

2) Puncture resistance.

3) Creep resistance.

4) Elongation potential.

5. Membrane thickness.

Note: The publication containing these standards may be obtained from:

National Sanitation Foundation
P.O. Box 1468
Ann Arbor, Michigan 48106

The publication containing these standards is available for inspection at the offices of the department, the secretary of state and revisor of statutes.

3. A description of the proposed testing program for the secondary liner shall be submitted which outlines the proposed procedures for performing the tests required in s. NR 660.09(1)(h) and describes the number of samples necessary to obtain representative results. The description of the proposed testing program shall include:

a. For short and long-term permeability testing, the:

1) Types of permeant;

2) Proposed pressure gradients;

3) Number of pore volumes to be passed through the samples;

4) Chemical analysis of the influent through time; and

5) Chemical analysis and volume measurements of effluent being discharged through time.

b. A description of the physical testing program of the samples before and after permeability testing to meet the requirements of s. NR 660.09(1)(h)2.

(f) Appendix. Show the site boundaries on all maps included in the appendix. In the appendix include:

1. All new data such as boring logs, soil tests, well construction data, water level measurements and test data and results.

2. A plat map of the area.

3. A USGS quadrangle of the area, updated with locations of applicable wells installed after preparation of the quadrangle.

4. A soil conservation service soil map and interpretation, if available.

5. References.

NR 660.09 FEASIBILITY REPORT. (1) Unless specifically exempted in s. NR 660.04, no person may establish or construct a hazardous waste landfill or surface impoundment, expand an existing facility or be issued an initial operating license under s. NR 680.32 without first obtaining approval of a feasibility report describing the physical conditions of the proposed facility and subsequently obtaining approval of a plan of operation from the department. The purpose of the feasibility report is to determine whether the facility has potential for use as a hazardous waste landfill or surface impoundment and to identify any conditions which the applicant is required to include in the plan of operation. The feasibility report shall be submitted in accordance with s. 144.44, Stats., and ss. NR 680.05 and 680.06.

(a) All information specified in s. NR 660.08(2) shall be submitted.

1. If an initial site report has been submitted, the applicant shall include all pertinent information contained in the feasibility report.

2. If an initial site report has been reviewed by the department, additional information addressing all department review comments shall be included.

(b) The applicant shall prepare an existing site condition topographic plan which shall contain a detailed topographic survey of the facility area and all area within a distance of 1500 feet of the facility. The minimum scale of this plan shall be one inch = 200 feet with a maximum 2-foot contour interval. The contour interval shall be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operating unit of the facility. All elevations shall be related to USGS data. More than one plan sheet shall be prepared to show the required information if one sheet is too detailed to be clear. The plan or plans shall clearly show:

1. 100-year floodplain area.
2. Surface waters, including intermittent streams.
3. Homes, buildings, man-made features and utility lines.
4. Surrounding land uses, such as residential, commercial, agricultural and recreational.
5. Property boundaries, facility or waste management boundaries and fill areas, including any previous fill area.
6. Access control, such as fences and gates.
7. Water supply wells and any other wells, such as irrigation wells.
8. Well boring locations and observation well locations.
9. A wind rose, which show prevailing wind speed and direction.
10. Buildings, treatment, storage or disposal operations; or other structures such as recreation areas, runoff control systems, access and internal roads, storm, sanitary and process sewerage systems, loading and unloading areas and fire control facilities.

11. Barriers for drainage or flood control.

12. Location of operational units within the facility where hazardous waste is or will be treated, stored or disposed of, including equipment cleanup areas.

(c) Field and laboratory investigations shall be performed to further define site physical characteristics including soils, bedrock and groundwater. These investigations shall include:

1. Sufficient soil borings to adequately define the soil and bedrock conditions at the site. At a minimum, 5 soil borings for the first 5 acres and 3 borings for each additional 5 acres or portion thereof shall be performed. The borings shall be located in a grid pattern to provide at least one boring in each major geomorphic feature, such as ridges, lowlands and drainage swales. All borings shall extend at least 30 feet below the anticipated facility base grade or to bedrock, unless the depth to bedrock is 100 feet or more below the facility base grade.

2. Soil samples shall be collected utilizing standard undisturbed soil sampling techniques. Samples may not be composited for testing purposes. Soil samples shall be collected on a continuous basis from the ground surface to at least 30 feet below the anticipated base of the facility. After that point, soil samples shall be collected from each soil layer encountered and at maximum 5-foot intervals. All soil and bedrock samples shall be described and retained until the department issues a feasibility determination. Representative samples of all major soil units and bedrock formations shall be retained until the department issues an operating license for the facility.

3. Boring logs accurately recording soil and bedrock conditions encountered at the site shall be submitted for all borings. Each log shall include soil and rock descriptions, method of sampling, sample depth, date of boring, water level measurements and dates, and soil test data. All elevations shall be corrected to USGS data.

4. For each significant soil layer encountered, at least 3 soil samples shall be analyzed for grain size distribution, either mechanically or hydrometrically as appropriate to the soil type, and classified according to the unified soil classification system.

5. At least 3 laboratory permeability tests shall be conducted for each significant soil layer above and below the water table. Single well response tests shall be performed on all on-site wells.

6. Estimates and, when necessary, field and laboratory tests shall be provided for porosity, effective porosity, transmissivity, storage capacity, secondary permeability, diffusion coefficient and dispersion coefficients, cation exchange capacity, soil buffering capacity and any other physical or chemical soil characteristics that may be necessary to assess the environmental feasibility of the site.

7. Soil borings within the unconsolidated material shall be converted to water table observation wells and well nests in accordance with the following a schedule:

a. At least five water table observation wells and 3 well nests for the first 5 acres or portion thereof.

b. At least three water table observation wells and one well nest for each additional 5 acres or portion thereof.

8. Soil borings to the competent bedrock surface shall be converted to piezometers in accordance with the following schedule:

a. At least three piezometers for the first 5 acres or portion thereof.

b. At least one piezometer for each additional 10 acres or portion thereof.

9. Well construction information shall include the elevations of the ground surface, top and bottom elevation of well pipe, the bottom of the boring, and well seals; length of screened interval; diameter of boring; a description of well construction and backfill materials and boring logs as specified in subd. 3. Observation wells which may be used as monitoring wells shall meet the requirements specified in s. NR 635.12(1) to (12) for monitoring wells shall be met.

10. Upon completion, each well shall be properly developed. At least 3 rounds of chemical testing for field conductivity, adjusted to 25°C, field pH, COD and TOC shall be performed to help determine if all the wells are properly developed. Additional development and chemical testing shall be performed as needed until all wells are chemically stabilized and produce representative samples of groundwater quality.

11. Once developed, all wells shall be pumped and successive water level measurements shall be made until stabilized readings are obtained.

12. Where public or private wells are present within one half mile of the proposed site, the groundwater aquifer shall be evaluated based on well logs, well construction reports and available pump test results, along with details on well location, ownership and well driller. The department may require the owner or operator to attempt to obtain stabilized water level readings from these wells.

13. The department may require the owner or operator to attempt to sample all public or private wells within one half mile of the proposed site and analyze for the parameters and characteristics specified in ch. NR 635.

(d) Data shall be presented as follows:

1. All raw data such as boring logs, well logs, well construction diagrams, soil tests, permeability tests and calculations, water quality and water level measurements shall be included in the report appendix.

2. A series of geologic cross-sections passing through all borings shall illustrate existing topography, soil borings, soil classification and other properties, interpreted soil stratigraphy, bedrock, well construction and stabilized water level readings for each well.

3. At least 2 water table contour maps representing yearly high and low water table conditions shall be constructed based on stabilized water level readings. The existing site conditions plan shall be used as a base for this map. Seasonal changes in groundwater levels shall be recorded by measuring water levels in all on-site wells at least monthly from the time the initial wells are installed.

4. Groundwater flow net sections shall be prepared to illustrate horizontal and vertical flow directions. This information shall be illustrated on geologic sections.

(e) The anticipated types, amounts and characteristics of the hazardous and solid waste to be disposed at the site shall be described and evaluated with respect to design, operation, and to impacts on the air, surface water and groundwater quality. Chemical and physical tests shall be done on representative waste samples and on representative or simulated leachate samples using approved procedures. All testing shall be documented.

(f) A water balance shall be prepared for the periods of time before construction, during active operations and after site closure. Factors to be considered in preparation of the water balance are precipitation, evapotranspiration, infiltration, runoff, soil and waste moisture holding capacity, the physical and chemical characteristics of the waste, surface water and groundwater conditions, and proposed design concepts. The water balance analysis shall address leachate generation rates and the effect of the site on surface water and groundwater levels, quantity and quality for worst, average and best case conditions.

(g) The items set forth in subd. 1 to 11 shall be evaluated and discussed in accordance with procedures outlined in the national sanitation foundation standard 54 for flexible membrane liners or as otherwise approved in writing by the department to justify the type of primary liner being proposed. The definitions of terms or words in section 2 of the national sanitation foundation standard 54 for flexible membrane liners applies to terms or words used in this paragraph where a dictionary definition does not exist or is not applicable. The items which shall be evaluated and discussed include but are not limited to the following:

1. A complete description of the proposed liner material including:

a. Manufacturers name, address and telephone number.

b. Thermal properties.

c. Chemical resistance including the results of all waste compatibility studies.

d. Material formulation including additives such as:

1) Antioxidants.

2) Antistatic agents.

3) Colorants.

4) Fillers such as extenders, carriers and reinforcing agents.

5) Fibers.

6) Lubricants.

7) Plasticizers.

8) Stabilizers.

e. Sheet size as delivered.

2. An evaluation of the compatibility of the primary liner with the existing and projected environment. This testing shall determine if the on-site soils, imported soils, waste and waste leachate are compatible with the proposed liner so that the liner does not fail before its estimated service life is reached. This testing shall include:

a. A determination of the organic content of the underlying soils and plans for removing them from subgrade.

b. The effect of soil pH on the proposed liner.

c. Liner compatibility and tolerance to chemical contaminants within the soil.

d. Short-term compatibility testing to evaluate the liner's ability to contain the waste and waste leachate.

e. Long-term compatibility testing including samples of the as-delivered liner material and actual samples of field constructed seams.

3. The liner's susceptibility to attack by micro-organisms and macro-organisms shall be evaluated and shall include:

a. The liner's resistance to bacteria and fungi.

b. A general discussion on:

1) The proposed method for preventing vegetation from growing through the membrane liner.

2) The proposed method for eliminating attack by insects, rodents and burrowing animals.

3) How the liner will be protected from puncture by hooved animals.

4. The physical suitability of the liner shall be determined by securing representative samples of the fabricated liner and from samples used for compatibility testing. Testing shall be undertaken to determine the following properties:

a. Tear resistance.

b. Puncture resistance.

c. Creep resistance.

d. Elongation potential.

e. Membrane thickness.

5. Discussion of the following areas:

a. Material properties of the proposed liner including:

1) Workability of the liner.

2) Repairability of the liner.

3) Ability to withstand objects falling directly on the liner.

b. The type of factory and field seams to be utilized.

c. The type of seam testing to be performed including:

1) Non-destructive.

2) Destructive.

d. Bedding and drainage material to protect the liner from:

1) Vehicular traffic; and

2) Objects driven through the drainage layer.

e. Proposed anchoring details to ensure liner stability.

6. A description of the constraints and limitations on working conditions under which the liner may be installed including:

- a. Maximum and minimum temperature ranges.
- b. Humidity.
- c. Rainfall.
- d. Direct sunlight.

7. The potential for gas generation beneath the liner shall be evaluated and a system for venting gas shall be proposed if necessary.

8. The potential for frost heaving and subsequent damage to the liner or subgrade shall be evaluated.

9. A description of where the liner will be stored prior to construction and an estimate on the length of time storage may take place.

10. Details shall be provided on the methods to be used for joining the liner to concrete structures or pipes, if penetrations of the liner are proposed.

11. Detailed information concerning quality control and quality assurance of the liner material, factory and field seaming and construction operations related to the integrity of the liner system is required. The minimum information shall include:

a. Persons or organizations responsible for liner manufacturing, delivery, storage, installation and testing shall be identified.

b. The tests utilized in the quality control and quality assurance program shall be detailed. The number and location of the tests shall be indicated.

Note: The publication containing these standards may be obtained from:

National Sanitation Foundation
P.O. Box 1468
Ann Arbor, MI 48106

The publication containing these standards is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(h) The following tests shall be performed in accordance with procedures approved in writing by the department, to document that the secondary liner is compatible with the expected or actual leachate:

1. Short and long term tests to determine:

- a. The saturated variable head permeability of the clay samples with both distilled water and leachate.
- b. Chemical analysis of the permeants over the duration of the test.
- c. Chemical analysis and volume measurements of the effluent being discharged over the duration of the test.

2. Physical testing of the clay samples before and after permeability testing including:

- a. Particle size, as specified in ASTM standard D-422-63 (1972).
- b. Particle size for material finer than number 200 sieve, as specified in ASTM standard D-1140-54 (1971).
- c. Liquid limit, as specified in ASTM standard D-423-66 (1972).
- d. Plasticity index, as specified in ASTM standard D-424-59 (1971).

Note: The publications containing these standards may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(i) The topographic map required under par. (b) shall include a delineation of the waste boundary, the property boundary, the proposed "point of standards application" as specified in ch. NR 635, the proposed location of groundwater monitoring wells as required under ch. NR 635, and, to the extent possible, the information required in s. NR 660.08(2)(b)4.

(j) If the presence of hazardous constituents has not been detected in the groundwater at the time of the feasibility report is submitted, the owner or operator shall submit sufficient information, supporting data, and analysis to establish a detection monitoring program which meets the requirements of ss. NR 635.05 to 635.15. This submission shall address the following items specified under ss. NR 635.05 to 635.15:

1. A proposed list of indicator parameters, waste constituents or reaction products that can provide a reliable indication of the presence of hazardous constituents in the groundwater;
2. A proposed groundwater monitoring system;
3. Background values for each proposed monitoring parameter or constituent, or procedures to calculate the values; and
4. A description of proposed sampling, analysis and statistical comparison procedures to be utilized in evaluating groundwater monitoring data.

(k) If the presence of hazardous constituents has been detected in the groundwater at the point of standards application at the time feasibility report is submitted the owner or operator shall submit sufficient information, supporting data, and analyses to establish a compliance monitoring program which meets the requirements of ss. NR 635.05 to 635.15. Except as provided in s. NR 635.13(9), the owner or operator shall also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of s. NR 635.15, unless the owner or operator obtains written authorization in advance from the department to submit a proposed license schedule for submittal of the plan. To demonstrate compliance with s. NR 635.13, the owner or operator shall include the following information:

1. A description of the wastes previously handled at the facility;
2. A characterization of the contaminated groundwater, including concentrations of hazardous constituents;

3. A list of hazardous constituents for which compliance monitoring shall be undertaken in accordance with ss. NR 635.09 and 635.12;

4. Proposed concentration limits for each hazardous constituent, based on the criteria in s. NR 635.06, including a justification for establishing any alternate concentration limits;

5. Detailed plans and an engineering report describing the proposed groundwater monitoring system in accordance with the requirements of s. NR 635.09; and

6. A description of proposed sampling, analysis and statistical comparison procedure to be utilized in evaluating groundwater monitoring data.

(l) If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under table I in s. NR 635.09, or if groundwater monitoring conducted at the time of feasibility report submittal under s. NR 635.14 at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, the owner or operator shall submit sufficient information, supporting data and analyses to establish a corrective action program which meets the requirements of s. NR 635.12. An owner or operator is not required to submit information to establish a corrective action program if the owner or operator demonstrates to the department that alternate concentration limits will protect human health and the environment after considering the criteria listed in s. NR 635.08(2). Instead, the owner or operator shall submit sufficient information to establish a compliance monitoring program which meets the requirements of s. NR 635.12. To demonstrate compliance with s. NR 635.12, the owner or operator shall address the following items:

1. A characterization of the contaminated groundwater, including concentrations of hazardous constituents;

2. The concentration limit for each hazardous constituent found in the groundwater as in s. NR 635.09;

3. Detailed plans and an engineering report describing the corrective action to be taken; and

4. A description of how the groundwater monitoring program will demonstrate the adequacy of the corrective action.

5. The feasibility determination may contain a schedule for submittal of the information required in subs. 3. and 4., if the owner or operator obtains written authorization from the department prior to a final decision on the feasibility of the project.

(m) Recommendations on design constraints for development of the site, shall be made and reasons given for the recommendations. This shall include a discussion of the potential for the site to meet locational requirements in s. NR 660.06. Particular attention shall be given to assessing the results of the compatibility testing on the primary and secondary liners. For expansion of existing facilities, the report shall include sufficient information to assess the effectiveness of the existing facility design and operation in protecting air, surface water and groundwater quality.

(n) Based on the conclusions resulting from site analysis, a proposed site design shall be prepared. This shall consist of preliminary engineering plans and a general discussion of proposed operating procedures. This section of the report shall include the following information:

1. A plan sheet showing proposed access, lateral extent of filling, and phases of site development. The existing site conditions map shall be utilized as a base for this sheet.

2. A series of north-south and east-west cross-sections showing present topography, proposed base grades and final grades. This information shall be displayed on the geological sections.

3. Preliminary cover balance calculations.

4. Proposed methods for leachate and gas control including collection, containment and treatment. Preliminary agreements with wastewater treatment plants shall be included when applicable.

5. Proposed operating procedures including method of site development, method of access control, control of surface water, screening, covering frequency as applicable and other special design features.

6. Evaluation of proposed facility location and operation in terms of environmental soundness, safety and potential for accidental spills and other failures of environmental concern.

7. Detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of ch. NR 635.

8. Proposed groundwater, leachate, surface water, gas, air, unsaturated zone and other monitoring.

9. Proposed contingency plan and method of correcting accidents or potential failures of the proposed facility that may affect air, surface water and groundwater quality.

10. Proposed closure sequence.

11. Proposed final use.

12. Proposed method of demonstrating financial responsibility and long-term care requirements.

(o) To aid in completing an environmental assessment and in determining the need for an environmental impact report or environmental impact statement, the feasibility report shall include a brief discussion of the following:

1. The purpose and need for the proposed project and for the recommended site.

2. The probable adverse and beneficial physical, biological, social, economic and other impacts of proposed site development.

3. The probable adverse impacts of site development that cannot be avoided.

4. The irreversible or irretrievable commitments of resources if the site is developed as proposed.

5. The alternatives to the proposed site development and alternate methods of waste disposal or recycling.

6. The direct, indirect and cumulative effects of the proposed site development.

7. Estimated construction, operation and long-term care costs for the entire project.

(p) An environmental impact statement is required under s. 1.11(2), Stats., for a new hazardous waste disposal facility if any of the following conditions exist:

1. The total area committed to solid and hazardous waste disposal exceeds 80 acres.

2. The total volume of solid and hazardous waste intended for disposal under the plan of operation exceeds one million cubic yards.

(2) Within 60 days after a feasibility report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility report is complete by determining whether or not the minimum requirements of this section have been met. Additional feasibility information may be required of the applicant after a determination that the feasibility report is complete only if the department establishes that a detailed review of the feasibility report indicates that site feasibility cannot be determined in the absence of additional information.

(3) If no hearing has been conducted under s. 144.44, Stats., the department shall issue the final determination of feasibility within 60 days after the 45 day notice period required under s. 144.44(2)(1) and (m), Stats., has expired. If an informational hearing is conducted under s. 144.44(2g), Stats., the department shall issue a final determination of feasibility within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 144.44(2r), Stats., a final determination of feasibility shall be issued within 90 days after the hearing is adjourned.

NR 660.10 PLAN OF OPERATION. (1) GENERAL. Unless specifically exempted in s. NR 660.04, no person may establish or construct a hazardous waste landfill or surface impoundment, expand an existing site or facility, or be issued an initial operating license under s. NR 680.32 until a plan of operation has been submitted in accordance with ss. NR 680.05 and 680.06 and s. 144.44, Stats., and approved in writing by the department. No person may establish, construct, operate, maintain, close, provide long-term care for or terminate a hazardous waste landfill or surface impoundment except in accordance with this section and with the approved plan of operation. Only persons who have obtained a favorable determination of site feasibility from the department may submit a plan of operation for review and approval.

(2) CONTENT. All plans of operation for hazardous waste landfills or surface impoundments shall contain complete plans and specifications necessary for the construction, operation, monitoring, closing, long-term care and termination of the project and any additional information the department may require for the analysis of environmental impacts of the project. This information shall be presented in a manner that is clear and understandable. The plan of operation shall contain the following information:

Note: The information is to be presented in a clear manner because these documents are to be used for the day-to-day operation of the site.

(a) Engineering plans consisting of the following:

1. A title sheet indicating the project title, the person who prepared the plans, the person for whom the plans were prepared, a table of contents and a location map showing the location of the site and if applicable the area to be served.

2. An existing conditions plan sheet indicating site conditions prior to development. The details and extent of coverage shall be the same as that required for the existing site conditions map in s. NR 660.09(1)(b).

3. A base grade plan sheet indicating site base grades or the appearance of the site if it were excavated in its entirety to the base elevation, before installation of any engineering modifications or the beginning of any filling.

4. An engineering modifications plan sheet indicating the appearance of the site after installation of the secondary liner. More than one plan sheet may be required for complicated sites.

5. A fabrication plan sheet indicating how each panel of the primary liner shall be located and installed. The panels shall be numbered in the order they shall be installed. All side slope seams shall run from top to bottom of the slope, the full length of the slope.

6. A final site topography plan sheet indicating the appearance of the site at closing including the details necessary to prepare the site for long-term care.

7. A series of phasing plan sheets showing the progression of site development through time. A separate plan shall be provided for initial site preparations and for each subsequent major phase or new area where substantial site preparation shall be performed. Each plan shall include a list of construction items and quantities necessary to prepare the phase indicated.

8. A site monitoring plan sheet showing the location of all devices for the monitoring of the unsaturated zone, leachate production, groundwater quality, surface water quality, and gas production and venting. This plan shall include a table indicating the parameters to be monitored and the frequency of monitoring before, during and after site development.

9. A long-term care plan sheet showing the site at the completion of closing and indicating those items anticipated to be performed during the period of long-term care for the site. The plan shall include a table listing the items and the anticipated schedule for monitoring and maintenance. This information may be presented on the final site topography sheet.

10. The following information shall be presented on the plan sheets:

a. All information required under s. NR 660.09(1)(b) for the existing site conditions map unless including this information leads to confusion with the data intended for display, except that existing site topography shall be sketched lightly or otherwise indicated on the plan sheets required in subds. 3. to 7.

b. A survey grid, referenced to the state plane coordinate system, with base lines and monuments to be used for field control.

c. Limits of filling for each major or special waste type or fill area.

d. All drainage patterns and surface water drainage control structures within the actual fill area and at the site perimeter. Structures may include berms, ditches, sedimentation basins, pumps, sumps, culverts, pipes, inlets, velocity breaks, sodding, erosion matting or other methods of erosion control.

e. The direction and sequence of filling within each phase.

f. Ground surface contours at the time represented by the drawing. Spot elevations shall be indicated for key features.

g. Areas to be cleared, grubbed and stripped of topsoil.

h. Borrow areas for liner materials, gas venting materials, berms, roadway construction and cover materials.

i. All soil stockpiles including cover materials, topsoil, liner materials, gas venting materials and other excavation.

j. Access roads and traffic flow patterns to and within the active fill area.

k. All temporary and permanent fencing.

l. The methods of screening such as berms, vegetation or special fencing.

m. Leachate collection, control and treatment systems which may include pipes, manholes, trenches, berms, collection sumps or basins, pumps, risers, lines and liner splices. Invert elevations shall be provided as often as necessary to allow for proper construction of these systems.

n. Gas, leachate and groundwater monitoring devices and detection systems.

o. Severe weather operation plans.

p. Support buildings, scale, utilities, gates and signs.

q. Special waste handling areas.

r. Construction notes and references to details.

s. Other appropriate site features.

11. A series of site cross-sections shall be drawn perpendicular and parallel to the site base line through each major phase and at points of grade break and important construction features. The location of the cross-sections shall be shown on the appropriate plan sheet and the sections labeled using the site grid system. Each cross-section shall show existing and proposed base and final grades; soil borings and monitoring wells which the section passes through or is adjacent to; soil types, bedrock and water table; leachate control, collection and monitoring systems; gas venting and monitoring systems; limits of filling for each major or special waste type; drainage control structures; access roads and ramps on the site perimeter and within the active fill area; the filling sequence or phases; and other appropriate site features.

12. Detailed drawings and typical sections, as appropriate, for drainage control structures, access roads, fencing, leachate and gas control systems and monitoring devices, final cover design, buildings and other construction details.

(b) An operations manual consisting of the following information:

1. The manual shall identify the project title; engineering consultant; site owner, licensee and operator; proposed licensed acreage; site life and design capacity; municipalities, industries and collection and transportation agencies served; waste types and quantities to be disposed; and any exemptions applied for.

2. Specifications for site construction and operation shall be presented, including detailed instructions to the site operator and any contractors for all aspects of site construction and operation. References to specifications on the plan sheets and any additional instructions included, where appropriate. The specifications shall include, as applicable, the following information:

a. Initial site preparations including specifications for clearing and grubbing, topsoil stripping, other excavations, berm construction, drainage control structures, access roads and entrance, screening, fencing and other special design features.

b. A plan for initial site preparations including a discussion of the field measurements, photographs to be taken and sampling and testing procedures to be utilized to verify that the infield conditions encountered were the same as those contained in the feasibility report.

c. A proposed testing schedule to document that the secondary liner and the compacted clay portion of the final cover are constructed in accordance with the requirements of ss. NR 660.13(10)(d) and 660.16(1)(e) respectively. This program shall include testing to document the following:

- 1) Thickness, both overall and of each lift.
- 2) Undisturbed saturated variable head permeability.
- 3) Dry density, as specified in ASTM standards D-1556-82, D-2922-81 and D-2937-71 (1976).
- 4) Moisture-unit weight relations, as specified in ASTM standards D-698-78 or D-1557-78.
- 5) Moisture content, as specified in ASTM standard D-2216-80.
- 6) Liquid limit, as specified in ASTM standard D-423-66 (1972).
- 7) Plasticity index, as specified in ASTM standard D-424-59 (1971).
- 8) Particle size, as specified in ASTM standard D-422-63 (1972).
- 9) For the secondary liner, particle size for material finer than 200 sieve, as specified in ASTM standard D-1140-54 (1971).

Note: The publications containing these standards may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

d. A proposed testing and inspection program to document that the primary liner has been constructed in accordance with the requirements of s. NR 660.13(10) and the feasibility approval. All necessary testing shall meet or exceed the requirements of the national sanitation foundation standard 54 for flexible membrane liners. The definition of terms or words in section 2 of the national sanitation foundation standard 54 for flexible membrane liners shall apply to terms or words used in this subdivision where a dictionary definition does not exist or is not applicable. A proposal for documenting the following items shall be included:

- 1) Type of membrane.
- 2) Membrane thickness, both as delivered and as installed.
- 3) Testing to ensure the "as-delivered" membrane is the same material tested during the feasibility study.
- 4) Identification of the fabricator's role during membrane installation.
- 5) Methods for field inspection and testing of all joints, factory seams, field seams and mechanical seals.
- 6) Identification of the person or persons responsible for performing the inspections and a listing of their qualifications.
- 7) Location and number of tests necessary to document factory seam strength.
- 8) Location and number of tests necessary to document field seam strength.

9) All repairs made to the liner.

Note: The publication containing these standards may be obtained from:

National Sanitation Foundation
P.O. Box 1468
Ann Arbor, MI 48106

The publication containing these standards is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

e. A proposed testing program for the drainage layers above the primary and secondary liners and in the final cap to document the following:

- 1) Thickness.
- 2) Saturated variable or constant head permeability.
- 3) Particle size, as specified in ASTM standard D-422-63 (1972).
- 4) Density, as specified in ASTM standards D-1556-82, D-1922-81 and D-2937-71 (1976).

Note: The publications containing these standards may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

f. A proposal for groundwater, surface water, gas, unsaturated zone and leachate monitoring. In addition to the requirements of ch. NR 635, the proposal for groundwater, unsaturated zone and leachate monitoring shall be based on the results from the liner compatibility testing.

g. Daily operations including, as appropriate, a discussion of the timetable for development, waste types accepted or excluded, typical waste handling techniques, hours of operation, traffic routing, drainage and erosion control, windy, wet and cold weather operations, fire protection equipment, manpower, methods for handling of unusual waste types and incompatible waste, methods for vector, dust and odor control, daily clean-up, direction of filling, recordkeeping, parking for visitors and employees, monitoring, abandonment of filled areas, gas and leachate control methods, methods for managing leachate which is collected, backup equipment with names and telephone numbers where equipment may be obtained and other special design features. This may be developed as a removable section to improve accessibility for the site operator.

h. Development of subsequent phases consisting of a discussion of those items in subpars. a. to e. and g. as related to the development of subsequent phases of the site.

i. Site closing information consisting of a discussion of the anticipated sequence of events for site closing to meet the requirements of s. NR 660.15 or 660.16 and a discussion of those actions necessary to prepare the site for long-term care and final use including the type and amount of hazardous waste and hazardous waste constituents in the landfill or surface impoundment; the mobility and expected rate of migration of the hazardous waste and hazardous waste constituents; site location, topography, and surrounding land use, with respect to the potential effects of pollutant migration, such as proximity to groundwater, surface water and drinking water sources; climate, including amount, frequency, and pH of

precipitation; characteristics of the cover including material, final surface contours, thickness, porosity and permeability, slope, length of run of slope and type of vegetation on the cover; and geological and soil profiles and surface and subsurface hydrology of the site.

j. Long-term care information including a discussion of the procedures to be utilized for the inspection and maintenance of run-off control structures, settlement, erosion damage, gas and leachate control feasibilities, monitoring for gas, leachate and groundwater, and other long-term care measures as required by s. NR 660.17 and the factors specified in s. NR 660.08.

k. An economic analysis including an engineer's cost estimate for the construction of each major phase of site development and daily operation, site closing and long-term care.

3. A description of how the requirements of s. NR 660.13 shall be met.

(c) A design report shall be submitted which shall include supplemental discussions and design calculations to facilitate department review and provide supplemental information on financial responsibility for closure and long-term care under ss. 144.44 and 144.441, Stats., including the following information:

1. A closure plan under ss. NR 685.05 and NR 660.15 or 660.16, whichever is appropriate.

2. A long-term care plan as required by ss. NR 685.06 and NR 660.17.

3. A discussion of the reasons for the design of the major features of the site or facility as appropriate, such as traffic routing, base grade and relationships to subsurface conditions, anticipated waste types and characteristics, phases of development, liner design, facility monitoring and similar design features, including a list of the conditions of site development as stated in the department determination of the feasibility and the measures taken to meet the conditions, shall be included. A discussion of all calculations, cover balance computations, stockpile sizing estimates, estimate of site life and surface water run-off and leachate volume estimates shall be included. The calculations shall be summarized with the detailed equations presented in the appendix.

4. A detailed analysis in accordance with s. NR 685.07 shall be made of the financial responsibility for closure and long-term care from the time of site or facility closing to termination.

(d) A contingency plan as specified in ss. NR 630.21 and 630.22(1) and (2).

(e) An appendix shall be submitted which shall include any additional data not previously presented, calculations, material specifications, operating agreements, leachate treatment agreements, documents related to long-term care funding and other appropriate information.

(3) **COMPLETENESS.** Within 30 days after a plan of operation is submitted, the department shall notify the applicant in writing that the plan is either complete or not complete, specifying the information which shall be submitted before the report is deemed complete. The department shall determine if the plan of operation is complete by determining whether or not the minimum requirements of this section have been met. Additional plan of operation information may be required of the applicant after a determination that the plan of operation is complete only if the department establishes that a detailed review of the plan of operation indicates that the plan of operation is insufficient in the absence of additional information.

(4) **APPROVAL OR DISAPPROVAL OF PLAN OF OPERATION.** The department may not approve or disapprove a plan of operation until a favorable determination of feasibility has been issued for the facility. Upon submission of a complete plan of operation, the department shall either approve or disapprove the plan in writing within 90 days or within 60 days after a favorable determination of feasibility is issued for the facility, whichever is later.

NR 660.11 CONSTRUCTION DOCUMENTATION. (1) The construction of all landfills and surface impoundments for the disposal, treatment or storage of hazardous waste shall be documented by a registered professional engineer. The engineer shall also render an opinion, based on testing results and actual field inspection, on whether the facility has been constructed in substantial conformity with the plan of operation. A construction documentation report verifying and documenting all aspects of facility construction shall be prepared following the construction of each major area. The department shall review and approve, deny or deem incomplete the request for approval of construction documentation within 65 business days after receiving the request. Operation of the facility may not commence until the construction documentation report is approved by the department, and, if necessary, a license to operate the facility has been issued by the department. The reports shall include the following information:

(a) Plan sheets documenting: the location of the leachate collection trenches, all groundwater, gas, resistivity unsaturated zone and leachate monitoring devices, the sub-base and base grade elevations of the primary liner, secondary liners and drainage liners including spot elevations, the location and types of testing performed at a given location and the location of culverts, drainage ditches, manholes, dikes, stockpiles, access roads, and any other pertinent information. In addition, invert elevations shall be provided on all leachate collection pipes, cleanouts, manholes and culverts.

(b) Engineering and geologic cross-sections shall be prepared to document the construction work. These drawings shall consist of cross-sections every 100 feet perpendicular to the leachate collection lines and along the centerline of the pipes. Data to be presented on the cross-sections shall include: existing topography, soil borings, soil classification under the unified soil classification system, soil stratigraphy based on field documentation, well construction details, water level readings, the location and invert elevations of the leachate collection system, extraction points, cleanouts and any other information as appropriate.

(c) A comprehensive narrative explaining how construction of the project was accomplished along with an analysis of the data provided. This report shall also include an appendix containing all the raw data from soil testing work.

(d) A series of 35mm slides or color prints documenting all major aspects of facility construction.

(e) A letter under the seal of a registered professional engineer which certifies whether the facility has been constructed in substantial compliance with the approved plans. Any deviations from the approved plans shall be noted.

(2) A construction documentation report shall be prepared following closure of each major sequence of operation. The reports shall contain the following information:

(a) A plan sheet or sheets showing: the portions of the facility which were properly closed, the final grades of those areas with spot elevations as necessary and the location of grassed waterways, drainage ditches, gas vents, leachate head wells and other information as appropriate.

(b) A minimum of 2 cross-sections, one north-south and one east-west through the closed portion every 100 linear feet.

(c) All raw data from the soil testing performed along with a narrative analyzing the results.

(d) A series of 35mm slides or color prints documenting proper closure of the sequence.

(e) A letter under the seal of a registered professional engineer certifying that the final cap was placed and documented in substantial compliance with the approved plans. Any deviations from the approved plans shall be noted.

NR 660.12 RECORDING OF NOTICE. (1) Prior to licensing, the owner or operator shall submit proof that a notation of the existence of the site has been recorded for the property on which the facility is located, in the office of the register of deeds in each county in which a portion of the facility is located, that shall in perpetuity notify any potential purchaser of the property that:

- (a) The land has or will be used to dispose of, treat or store hazardous waste; and
- (b) Its use is restricted under s. NR 685.06(3).

NR 660.13 MINIMUM DESIGN AND OPERATIONAL REQUIREMENTS. (1) Unless specifically exempted in s. NR 660.04, no person may operate or maintain a new or existing landfill or surface impoundment except in conformity with the approved plan of operation and the minimum requirements of this section, in addition to the applicable general facility standards in ch. NR 630.

(2)(a) Only waste types and sources listed on the license or contained in the plan of operation approval may be accepted. Any new waste stream shall be properly characterized and tested for compatibility with both the primary and secondary liners. An evaluation shall also be made to determine what effects, if any, the additional waste would have on leachate treatability. The results of these studies shall be submitted to the department in writing. If the department determines that the waste is compatible with the design of the site, written approval shall be given for acceptance of the waste. Additional conditions of approval may be specified.

(b) The owner or operator of each landfill or surface impoundment with an interim license shall notify the department at least 60 days prior to receiving waste into each new unit, replacement of an existing unit or lateral expansion of an existing unit. The owner or operator of each facility submitting notice shall submit a feasibility report and plan of operation under ss. NR 660.09 and 660.10 within 6 months of submitting the notice to receive waste.

(3) In addition to the provisions in ch. NR 675, the following wastes may not be placed in a landfill or a surface impoundment:

(a) Ignitable waste (D001), corrosive waste (D002) or reactive waste (D003) that meet the criteria in s. NR 605.08(1) to (4).

(b) The following wastes listed in s. NR 605.09(2)(a), table II: F001, F002, F003, F004, F005, F024, F500, K001, K009, K010, K015, K016, K017, K018, K019, K020, K021, K028, K029, K030, K032, K033, K034, K042, K073, K085, K095, K096, K097, K098 or K105.

(c) The following wastes listed in s. NR 605.09(2)(a), table II, unless the owner or operator can demonstrate that the wastes do not exhibit the characteristic of reactivity as specified in s. NR 605.08(4): F007, F008, F009, F010 or F011.

(d) All wastes listed in s. NR 605.09(3)(b), table IV and (c), table V, except spill residue or contaminated soil, water or other debris as specified in s. NR 605.09(3)(a)4.

(4) Incompatible wastes, incompatible materials or incompatible wastes and materials may not be placed in the same landfill cell or surface impoundment, unless s. NR 630.17 is complied with.

(5) Hazardous wastes F020, F021, F022, F023, F026 and F027 may not be placed in a landfill or surface impoundment unless the requirements of s. NR 660.20 are complied with.

(6) The placement of bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids, whether or not absorbents have been added, in any landfill is prohibited.

(7) Before bulk or non-containerized liquid waste or waste containing free liquids that are not hazardous waste are placed in a landfill they shall be treated or stabilized, using a method that does not use absorbents or adsorbents, so that free liquids are no longer present. To demonstrate the absence or presence of free liquids, the EPA test method 9095, the paint filter liquids test, described in SW-846, "Physical/Chemical Methods for Evaluating Solid Waste", second edition, 1982, as amended by update I in April, 1984 and update II in April, 1985, shall be used.

Note: This publication may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

This publication is available for inspection at the offices of the department, the secretary of state, and the revisor of statutes.

Note: Methods that do not use absorbents or adsorbents to treat or stabilize liquid waste are described in statutory interpretative guidance documents available from EPA.

(8)(a)1. An empty container shall be crushed flat, shredded or otherwise reduced in volume to the maximum practical extent before it is buried beneath the surface of a landfill, or

2. A container shall be at least 90% full when placed in the landfill.

(b) A container holding waste may not be placed in a landfill, unless the placement of containers is specifically allowed in the plan of operation approval and:

1. All free standing liquid has been:

a. Removed by decanting or other methods; or

b. Mixed with absorbent or solidified so that free-standing liquid is no longer observed; or

c. Otherwise eliminated; or

2. The container is designed to hold liquids or free liquids for a use other than storage, such as a battery or capacitor; or

3. The container is very small, such as an ampule; or

4. The container is a lab pack that meet the criteria in par. (c) and is disposed of in accordance with par. (c) and subs. (2) and (3).

(c) Lab packs, which are small containers of hazardous waste in overpacked drums, may be placed in a landfill if the following requirements are met:

1. Hazardous waste shall be packaged in non-leaking inside containers. The inside containers shall be of a design and constructed of a material, that shall not react dangerously with, be decomposed by, or be

ignited by the contained waste. Inside containers shall be tightly and securely sealed. The inside containers shall be of the size and type specified in the DOT hazardous materials regulations specified in 49 CFR Parts 173, 178 and 179, November 1, 1985, if those regulations specify a particular inside container for the waste.

2. The inside containers shall be overpacked in an open head DOT specification metal shipping container specified in 49 CFR Parts 173, 178 and 179, November 1, 1985, of no more than 416 liter (110 gallon) capacity specified in and surrounded by a sufficient quantity of absorbent material to completely absorb all of the liquid contents of the inside containers. The metal outer container shall be full after packing with inside containers and absorbent material.

3. The absorbent material used may not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers in accordance with s. NR 630.17.

4. Incompatible wastes may not be placed in the same outside container.

Note: The publications containing these standards may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

5. Reactive wastes, other than cyanide-bearing or sulfide-bearing waste as specified in s. NR 605.08(4)(a)5., shall be treated or rendered non-reactive prior to packaging in accordance with subds. 1 to 4. Cyanide-bearing and sulfide-bearing reactive waste may be packed in accordance with subds. 1. to 4. without first being treated or rendered non-reactive.

(d) Effective [revisor - please insert effective date of these rules], the placement of any liquid which is not a hazardous waste into a landfill is prohibited unless the owner or operator of the landfill demonstrates to the department, or the department determines that:

1. The only reasonably available alternative to the placement in a landfill is placement in a landfill or unlined surface impoundment, whether or not licensed or operating under an interim license, which contains or may reasonably be anticipated to contain hazardous waste; and

2. Placement in the owner or operator's landfill will not present a risk of contamination of any underground source of drinking water.

(9) In addition to the waste analysis required by s. NR 630.12, whenever a surface impoundment is to be used to chemically treat a hazardous waste which is substantially different from waste previously treated in that impoundment or is to be used to chemically treat hazardous waste with a substantially different process than any previously used in that impoundment, the owner or operator shall, before treating the different waste or using the different process:

(a) Conduct waste analyses as specified in s. NR 630.13 and trial treatment tests, such as bench scale or pilot plant scale tests; or

(b) Obtain written, documented information on similar treatment of similar waste under similar operating conditions to show that this treatment can be accomplished in an environmentally sound manner and shall comply with the requirements of chs. NR 600 to 685.

(10) All landfills and surface impoundments for the treatment, storage or disposal of hazardous waste shall:

(a) Have a double liner system that is designed, constructed and installed to prevent any migration of wastes out of the facility to the adjacent subsurface soil, groundwater or surface water at any time during the active life, including the entire long-term care period. The primary liner shall be constructed of materials that prevent wastes from passing into the liner during the active life of the facility. The secondary liner shall be constructed with recompacted clay meeting the specifications outlined in par. (d). Both liners shall be:

1. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients, including static head and external hydrogeologic forces, physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation and the stress of daily operations;

2. Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression or uplift;

3. Installed to cover all surrounding earth which shall be in contact with the waste or leachate; and

4. Compatible with all of the waste to be contained.

(b) For landfills, have a leachate collection and removal system immediately above both liners that is designed, constructed, maintained and operated to collect and remove leachate from the facility. The applicant shall submit all the necessary calculations using the appropriate analytical models to justify that the proposed design shall limit the leachate head level over both the primary and secondary liner to 30 cm (1 foot) or less. For the purposes of designing the backup leachate collection system, the applicant shall assume that the primary liner is not present and all recharge is moving directly downward to the secondary liner. For surface impoundments, have a leachate collection and removal system between the primary and secondary liners. The leachate collection and removal system for both landfills and surface impoundments shall be:

1. Constructed of materials that are:

a. Chemically resistant to the waste managed in the facility and the leachate expected to be generated; and

b. Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials and by any equipment used at the facility; and

2. Designed and operated to function without clogging through the scheduled closure of the facility.

(c) Have a soil drainage layer above the primary liner and between the primary and secondary liners which meets the following specifications:

1. A minimum thickness of 60 cm (2 feet).

2. A saturated variable or constant head permeability of greater than or equal to 1×10^{-3} cm/sec.

3. Is classified as SP or SW under the uniform soil classification system specified in ASTM standard D-2487-69 (1975).

(d) Have a recompacted clay secondary liner which meets the following minimum specifications:

1. A minimum thickness of 150 cm (5 feet).

2. A saturated undisturbed variable head permeability of 1×10^{-7} cm/sec or less.
3. At least 50% of material by weight passing the number 200 sieve, as determined by the test methods specified in ASTM standards D-422-63 (1972) and D-1140-54 (1971).
4. At least 25% of material by weight finer than .002 mm particle size, as determined by the test method specified in ASTM standard D-1140-54 (1971).
5. Is classified as CL or CH under the unified soil classification system, specified in ASTM standard D-2487-69 (1975).
6. Has a liquid limit of 30% or greater, as determined by the test specified in ASTM standard D-423-66 (1972).
7. Has a plasticity index of 15% or greater, as determined by the test specified in ASTM standard D-424-59 (1971).
8. Is compacted to 90% modified proctor density, as determined by the test method specified in ASTM standard D-1557-78.
9. Is constructed in lifts which do not exceed 20 cm (8 inches) after compaction.

Note: The publications containing these standards may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(e) Have the primary liner designed and constructed entirely above the seasonal high water table.

(f) Have a backup leachate collection system that is designed, constructed, maintained and operated to detect any migration of liquid into the space between the liners and to allow for removal of the liquid for treatment. If liquid leaks into the backup leachate collection system, the owner or operator shall:

1. Notify the department of the leak in writing within 7 days after detecting the leak; and
2. Remove the accumulated liquid as it is generated in order to limit the leachate head to 30 cm (1 foot) or less. The liquid shall be disposed of in accordance with the approved plan of operation.

(g) Have a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 24-hour, 25-year storm.

(h) Be inspected, during construction or installation of liners and cover systems, such as membrane sheets or coatings, for uniformity, damage and imperfections, such as holes, cracks, thin spots or foreign materials. Immediately after construction or installation:

1. Synthetic liners and covers shall be inspected to ensure tight seams and joints and the absence of tears, punctures or blisters; and

2. Soil-based and admixed liners and covers shall be inspected for imperfections including lenses, cracks, channels, root holes or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(11) The exact location and the dimensions of each cell, including depth with respect to permanently surveyed bench marks, shall be recorded and placed on a map. The contents of each cell and approximate location of each hazardous waste type shall also be recorded. These records shall be handled as specified in s. NR 630.31.

(12) Diversion structures shall be constructed so that surface water run-on shall be prevented from entering the facility.

(13) All surface water drainage ditches, culverts, sedimentation basins and other drainage control structures shall be designed, constructed, operated and maintained to collect and control at least the water volume from a 25-year, 24-hour rainfall event. All appropriate calculations justifying the proposed design shall be included in the appendix of the plan of operation. Collection and holding facilities associated with run-on and run-off control systems shall be emptied or otherwise managed expeditiously after rainfall events to maintain the design capacity of the system. The freeboard maintained in a surface impoundment shall be sufficient to prevent any overtopping of the dike by overfilling, wave action or a storm and shall be capable of containing a rainfall from a 24-hour, 25-year storm but shall be no less than 2 feet. The owner and operator shall inspect the freeboard level at least once each operating day to ensure compliance.

Note: Examples of collection and holding facilities include tanks or basins.

(14) Surface water which has been in contact with the active portions of a landfill shall be collected and treated or disposed of as a hazardous waste in accordance with requirements of chs. NR 600 to 685, unless it is analyzed and found not to be hazardous waste as identified or listed in ch. NR 605 or it is collected and discharged into a navigable water in compliance with a WPDES permit issued by the department.

(15) Provisions shall be made for leachate treatment for all facilities.

(16) Where gases are generated within a site or facility, a gas collection and control system shall be installed to control the vertical and horizontal escape of gases.

(17) All access roads shall be constructed with a maximum grade no greater than 8%. The intersection of the access road with an existing highway shall be designed to provide sufficient sight distance and provide for minimum interference with traffic on existing highways. All access roads to the active area of an operation shall be of all weather construction and shall be maintained in good condition.

(18) All topsoil within the site of facility construction limits shall be salvaged and stored on-site in a nuisance-free manner for use in facility closure. Topsoil removed from borrow areas shall also be salvaged and placed in stockpiles in sufficient quantities to cover all the surfaces of excavated borrow areas to a depth of from 4 to 6 inches. In cases where the depth of the topsoil in the borrow area was originally less than 4 inches the topsoil shall be replaced to the original depth. After the topsoil has been replaced, excavated borrow areas and disturbed areas adjacent to them shall be fertilized and seeded.

(19) All earthen dikes shall have a protective cover of grass to minimize wind and water erosion and to preserve their structural integrity. The owner or operator shall inspect a surface impoundment, including dikes and vegetation surrounding the dike, at least once a week to detect any leaks, deterioration or failures in the impoundment. The integrity of the liner system installed in a landfill or surface impoundment shall be maintained and repaired, if physically possible, immediately upon detection of any failure, such as a liner puncture.

(20) Facility closure shall be accomplished in accordance with the approved plan of operation and s. NR 660.16 or, for those facilities with no approved plan of operation, in accordance with s. NR 660.15.

(21) The facility shall be surrounded with rapidly growing trees or shrubbery, fencing or with other appropriate means to screen it from the surrounding area and to provide a wind break.

(22) All facilities shall have a final cover designed to minimize infiltration and subsequent leachate production.

(23) Facility monitoring shall be performed in accordance with ch. NR 635 and the plan of operation approval.

(24) All soil borings and monitoring wells shall be backfilled with a chemically and physically stable sealant when the borings or wells are abandoned.

(25) All base grades for a landfill shall be designed and constructed with a minimum slope of 2%.

(26) A minimum of 6 inches of cover material shall be applied daily on active portions of a landfill. Active portions which will not have additional waste placed on them for at least one week shall be covered with 12 inches of cover material. Wind dispersal of hazardous waste or any particulate matter shall be controlled by covering or other means.

(27) During construction, installation and testing of the primary liner, the secondary liner, the drainage layers, the leachate collection systems and all 3 phases of the final cover system, a registered professional engineer shall be present on the site at all times. The professional engineer shall ensure that all construction, documentation and testing are carried out in accordance with chs. NR 600 to 685 and the plan of operation approval.

(28)(a) While a landfill is in operation, it shall be inspected weekly and after storms to detect evidence of any of the following:

1. Deterioration, malfunctions, or improper operation of run-on and run-off control systems;
2. The presence of liquids in leak detection systems;
3. Proper functioning of wind dispersal control systems, where present; and
4. The presence of leachate in and proper functioning of leachate collection and removal systems.

(b) While a surface impoundment is in operation, it shall be inspected weekly and after storms to detect evidence of any of the following:

1. Deterioration, malfunctions, or improper operation of overtopping control systems;
2. Sudden drops in the level of the impoundment's contents;
3. The presence of liquids in leak detection systems; and
4. Severe erosion or other signs of deterioration in dikes or other containment devices.

(29) Prior to the issuance of an operating license, and after any extended period of time of at least 6 months, during which a surface impoundment was not in service, the owner or operator shall obtain a certification from a registered professional engineer that the impoundment's dike, including that portion of

any dike which provides freeboard, has structural integrity. The certification shall establish in particular that the dike:

(a) Will withstand the stress of the pressure exerted by the types and amounts of wastes to be placed in the impoundment; and

(b) Will not fail due to scouring or piping, without dependence on any liner system included in the surface impoundment construction.

(30) A surface impoundment shall be removed from service in accordance with sub. (31) when:

(a) The level of liquids in the impoundment suddenly drops and the drop is not known to be caused by changes in the flows into or out of the impoundment; or

(b) The dike leaks.

(31) When a surface impoundment is removed from service as required by sub. (30), the owner or operator shall:

(a) Immediately shut off the flow or stop the addition of wastes into the impoundment;

(b) Immediately contain any surface leakage which has occurred or is occurring;

(c) Immediately stop the leak;

(d) Take any other necessary steps to stop or prevent catastrophic failure;

(e) If a leak cannot be stopped by any other means, empty the impoundment; and

(f) Notify the department of the problem in writing within 7 days after detecting the problem.

(32) As part of the contingency plan, the owner or operator shall specify a procedure for complying with the requirements of sub. (31).

(33) No surface impoundment that has been removed from service in accordance with this section may be restored to service unless the portion of the impoundment which was failing is repaired and the following steps are taken:

(a) If the impoundment was removed from service as the result of actual or imminent dike failure, the dike's structural integrity shall be recertified in accordance with sub. (29);

(b) If the impoundment was removed from service as the result of a sudden drop in the liquid level:

1. For any existing impoundments without an operating license under s. NR 680.32, the owner or operator who desires to continue to operate the impoundment shall submit the necessary reports or plans to meet the requirements of this chapter and obtain an operating license in accordance with s. NR 680.32 prior to maintaining or operating the impoundment; or

2. For any other portion of the impoundment, the repaired liner system shall be certified by a registered professional engineer as meeting the design specifications approved in the plan of operation.

(34) A surface impoundment that has been removed from service in accordance with the requirements of this section and that is not being repaired shall be closed in accordance with the provisions of ss. NR 660.15 or 660.16, whichever is applicable.

(35) A surface impoundment shall be designed, constructed, maintained and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms and other equipment; and human error.

(36) A surface impoundment shall have dikes that are designed, constructed and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity it may not be presumed that the liner system will function without leakage during the active life of the unit.

NR 660.14 MONITORING. (1) **GAS MONITORING.** The department may require the installation of gas monitoring devices and sampling and analysis programs for protection against potential detrimental effects of gas production and to monitor the effectiveness of gas venting systems. Sample collection and analysis techniques shall be in accordance with standard methods.

(2) **SURFACE WATER MONITORING.** The department may require monitoring of surface water runoff, leachate seeps, sump pump discharges, sedimentation ponds and other surface water discharges resulting from facility operation and of surface waters which may be affected by the discharges. Sampling times and parameters shall be as specified by the department on a case-by-case basis.

(3) **MONITORING OF PHYSICAL FEATURES.** The department may require monitoring of air quality, landfill settlement, berm stability, vegetation growth, drainage control structures or other aspects of site or facility operation. The requirement shall be based upon facility characteristics and design features.

(4) **OPERATIONS REPORT.** The department may request the owner or operator of any landfill or surface impoundment to submit an operations report to assess the effectiveness and environmental acceptability of site operations. The contents of the report may include a discussion and analysis of entrance and access roads, confinement of active area, analysis of gas and leachate and other monitoring, cover to waste ratios, surface water control and erosion control, revegetation, settlement, volume utilized, site users, leachate quantity and quality, slope stability, equipment performance and volume and type of waste accepted.

NR 660.15 CLOSURE OF FACILITIES WITHOUT OPERATING LICENSES. (1) In addition to the closure requirements in s. NR 685.05 any person who maintains or operates a hazardous waste landfill or surface impoundment, without an operating license under s. NR 680.32, or who permits use of property for a facility shall comply with the requirements of this section. When ever a fill area or portion thereof reaches final grade or when the department determines that closure is required, the landfill or surface impoundment shall cease to accept waste. The fill area or portion thereof shall be closed in accordance with any plan approval issued by the department and the following requirements:

(a) Within 60 days after ceasing to accept waste, weather permitting, closure shall be accomplished as required in subds. 1 to 4. Placement of a final cover in accordance with all or a portion of the requirements of s. NR 660.16(1) may be required if the department determines that an improved final cover system is necessary to prevent or abate the groundwater standards contained in ch. NR 140 from being attained or exceeded or to meet the requirements contained in s. NR 635.15 or 635.16(14).

1. At final closure of the facility or upon closure of any unit or cell, the owner or operator shall cover the facility, unit or cell with a final cover designed and constructed to:

- a. Provide long-term minimization of migration of liquids through the closed facility;
- b. Function with minimum maintenance;

- c. Promote drainage and minimize erosion or abrasion of the cover;
- d. Accommodate settling and subsidence so that the cover's integrity is maintained; and
- e. Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

2. The entire unit or area previously used for disposal purposes shall be covered with at least 60 cm (2 feet) of compacted clay, sloped adequately to allow surface water runoff. Slopes shall be no less than 2% and no steeper than 33%. This 60 cm (2-foot) clay layer shall meet the following specifications:

- a. Have a saturated undistributed hydraulic conductivity of not more than 1×10^{-7} cm/sec.
- b. Be compacted to 90% modified proctor density, as determined by the test method specified in ASTM standard D-1557-78.
- c. Be constructed in lifts which do not exceed 20 cm (8 inches) after compaction.

Note: The publications containing this standard may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publication containing this standard is available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

3. Surface water shall be diverted to limit the potential for erosion and sedimentation. Wherever possible, surface water shall be diverted around previously filled areas. Where it is necessary to divert drainage over previously filled areas, drainage shall be conveyed by lined drainage swales having a minimum of 60 cm (2 feet) of clay.

4. The finished surface of the filled area shall be covered with a minimum of 15 cm (6 inches) of topsoil.

(b) Within 90 days after ceasing to accept waste, seeding, fertilizing and mulching of the finished surface shall be accomplished in accordance with the final site use. The seed type and amount of fertilizer shall be selected depending on the type and quality of topsoil and compatibility with native vegetation.

(c) Following final or partial closure, the facility shall be inspected and maintained by the owner or operator until it becomes stabilized or until the responsibility of the owner or operator terminates. 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 sampling and provisions for the protection against detrimental effects of leachate and gas migration from any landfill and surface impoundment in accordance with s. NR 660.14 and ch. NR 635.

(d) Upon final or any partial closure, all hazardous waste and hazardous waste residues including standing liquids, the liner underlying and surrounding contaminated soil and structures and equipment contaminated with waste or leachate shall be removed from surface impoundments not approved for final disposition of the wastes and shall be disposed of in accordance with chs. NR 600 to 685. Requests for department approval to allow any of the materials to be disposed of in place shall be submitted to the department prior to completion of closure, as a request for modification of a closure plan approval in accordance with s. NR 685.05. Closure of these facilities shall be accomplished in accordance with the

provisions of the approved plan of operation and with all applicable requirements of this section. If necessary to support the final cover specified in the approved closure plan, the owner or operator shall treat remaining liquids, residues and soils by removal of liquids, drying, stabilization or other means.

(2)(a) Closure plans may be required by the department for any hazardous waste facility without an approved closure plan, including facilities which are no longer in operation, but which were in existence on August 1, 1981. The department may require that the plan address any or all of the information outlined in sub. (1) and ss. NR 660.09, 660.10, 660.13 and 660.14 and ch. NR 635.

(b)1. Any closure and long-term care plan for a landfill or surface impoundment that stores, treats or disposes of hazardous waste shall include information on the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the hazardous waste unit. This information shall address:

a. Reasonably predictable potential releases from both normal operations and accidents at the unit, including releases associated with transportation to or from the hazardous waste unit;

b. The potential pathways of human exposure to hazardous waste or constituents as a result of releases described under subpar. a.; and

c. The potential magnitude and nature of human exposure as a result of the releases.

2. Within 90 days of [the effective date of this rule . . .revisor, insert date], all owners or operators of a landfill or surface impoundment shall submit the information in subd. 1.b. as supplemental information to their feasibility report.

(3) The owner or operator of a facility that treats hazardous waste shall, at completion of closure, remove all hazardous waste and hazardous waste residues, including, but not limited to, ash and sludges, from the treatment process or equipment, discharge control equipment and discharge confinement structures. The department may require monitoring of ground or surface waters, if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

NR 660.16 CLOSURE OF FACILITIES WITH OPERATING LICENSES. In addition to the closure requirements in s. NR 685.05 any person who maintains or operates a hazardous waste landfill or surface impoundment, or who permits use of property for the facility shall also comply with the requirements of this section. When ever a fill area or portion thereof reaches final grade or when the department determines that closure is required, waste acceptance shall cease and the fill area or portion thereof shall be closed in accordance with the plan approval issued by the department and the following requirements:

(1) Within 60 days after ceasing to accept waste, weather permitting, closure shall be accomplished in the following manner:

(a) At final closure of the facility or upon closure of any cell, the owner or operator shall cover the facility or cell with a final cover designed and constructed to:

1. Provide long-term minimization of migration of liquids through the closed facility.
2. Function with minimum maintenance.
3. Promote drainage and minimize erosion or abrasion of the cover.
4. Accommodate settling and subsidence so that the cover's integrity is maintained, and

5. Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(b) The facility or cell shall be closed with final cover consisting of a vegetated top cover, a middle drainage layer and a low permeability bottom layer. The vegetated top cover shall:

1. Be at least 60 cm (2 feet) thick.

2. Support vegetation that shall effectively minimize erosion without the need for continuing application of fertilizers, irrigation or other man-applied materials to ensure viability and persistence.

3. Be planted with persistent species that shall effectively minimize erosion, but does not have a root system that shall penetrate beyond the vegetative top cover and middle drainage layer.

4. Have a minimum slope of between 3-5% after allowance for settlement and subsidence and slopes no steeper than 25%.

(c) The drainage layer shall:

1. Be at least 30 cm (12 inches) thick with a saturated variable or constant head permeability not less than 1×10^{-3} cm/sec.

2. Have a final bottom slope of at least 3%, after allowing for settling and subsidence.

3. Be overlain by a graded granular filter or synthetic filter fabric to prevent clogging from fines.

4. Be designed so that discharge flows freely in the lateral direction to minimize head on and flow through the low permeability layer.

5. Consist of material classified as SP under the unified soil classification system specified in ASTM standard D-2487-69 (1975) and shall be free of rock, fractured stone, angular grains, debris, cobbles, rubbish, roots or any other materials which could potentially damage the upper component of the low permeability layer.

(d) The low permeability layer shall have 2 components. The upper component shall:

1. Consist of material which is designed, constructed and installed to prevent the migration of any liquid into the material during the entire long-term care period.

2. Have a final upper slope of at least 3% after allowances for settling.

3. Be located at least 30 cm (one foot) below the maximum recorded depth of frost penetration in the area.

(e) The lower component shall:

1. Consist of at least 60 cm (2 feet) of clay.

2. Have a saturated undistributed hydraulic conductivity of not more than 1×10^{-7} cm/sec.

3. Be compacted to 90% modified proctor density, as determined by the test method specified in ASTM standard D-1557-78.

4. Be constructed in lifts which do not exceed 20 cm (8 inches) after compaction.

Note: The publications containing these standards may be obtained from:

American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103

The publications containing these standards are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(f) Surface water shall be diverted to limit the potential for erosion and sedimentation. Wherever possible, surface water shall be diverted around previously filled areas. Where it is necessary to divert drainage over previously filled areas, drainage shall be conveyed by lined drainage swales having a minimum of 60 cm (2 feet) of clay.

(g)1. Any closure and long-term care plan for a landfill or surface impoundment that stores, treats or disposes of hazardous waste shall include information on the potential for the public to be exposed to hazardous wastes or hazardous constituents through releases related to the hazardous waste unit. This information shall address:

a. Reasonably predictable potential releases from both normal operations and accidents at the unit, including releases associated with transportation to or from the hazardous waste unit;

b. The potential pathways of human exposure to hazardous waste or constituents as a result of releases described under subpar. a.; and

c. The potential magnitude and nature of human exposure as a result of the releases.

2. Within 90 days of [the effective date of this rule . . .revisor, insert date], all owners or operators of a landfill or surface impoundment shall submit the information in subd. 1.b. as supplemental information to their feasibility report.

(2) Within 90 days after ceasing to accept waste, seeding, fertilizing and mulching of the finished surface shall be accomplished in accordance with sub. (1)(b) and the final site use. Seed type and amount of fertilizer shall be selected depending on the type and quality of topsoil and compatibility with native vegetation.

(3) Following final or partial closure, the facility shall be inspected and maintained by the owner or operator until it becomes stabilized or until the responsibility of the owner or operator terminates. 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 sampling provisions for the protection against detrimental effects of leachate and gas migration from any landfill and surface impoundment in accordance with s. NR 660.14 and ch. NR 635.

(4) Upon final or any partial closure, all hazardous waste and hazardous waste residues including standing liquids, the liner, underlying and surrounding contaminated soil and structures and equipment contaminated with waste and leachate shall be removed from surface impoundments not approved for final disposition of the wastes and shall be disposed of in accordance with chs. NR 600 to 685. Requests for department approval to allow any of the materials to be disposed of in place shall be submitted to the department prior to completion of closure, as a request for modification of the closure plan approval, in accordance with s. NR 685.05. Closure of these facilities shall be accomplished in accordance with the provisions of the approved plan of operation and with all applicable requirements of this section. If

necessary to support the final cover specified in the approved closure plan, the owner or operator shall treat remaining liquids, residues and soils by removal of liquids, drying or other means.

(5) The owner or operator of a facility that treats hazardous waste shall, at completion of closure, remove all hazardous waste and hazardous waste residues, including, but not limited to, ash and sludges, from the treatment process or equipment, discharge control equipment and discharge confinement structures. The department may require monitoring of ground or surface waters, if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

NR 660.17 LONG-TERM CARE. (1) The department may grant a written exemption from any of the requirements of this section and s. NR 685.06 as part of a closure plan or plan of operation approval or modification thereof for surface impoundments, if no hazardous waste residues including standing liquids, the liner, underlying and surrounding contaminated soil and structures and equipment contaminated with waste and leachate are left in place at final closure.

(2) After final closure, the owner or operator shall comply with all long-term care requirements contained in s. NR 685.06 and any plan of operation approval, including maintenance and monitoring throughout the long-term care period. The owner or operator shall:

(a) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion or other events.

(b) Maintain and monitor the back-up leachate collection system in accordance with the approved plan of operation.

(c) Continue to operate the leachate collection and removal system.

(d) Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of ch. NR 635.

(e) Prevent run-on and run-off from eroding or otherwise damaging the final cover.

(f) Protect and maintain all surveyed benchmarks, including benchmarks used in complying with s. NR 660.13(11) for the entire period of long-term care.

(g) Implement measures needed to correct contamination caused by leachate or gases generated within the landfill.

NR 660.18 WASTE MANAGEMENT FUND. The owners and operators of landfills and surface impoundments utilized for disposal shall contribute to the waste management fund as specified in s. NR 685.09, unless specifically exempted in s. NR 660.04.

NR 660.19 SURFACE IMPOUNDMENTS WITH DISCHARGES REGULATED UNDER CH. 147, STATS. (1) GENERAL. Except as otherwise provided in sub. (2), no person may operate or maintain a surface impoundment unless the person has obtained an interim license, operating license or waiver from the department in accordance with the requirements of ss. NR 600.10, 680.20 to 680.24 or 680.30 to 680.32.y

(2) EXEMPTIONS. Unless otherwise provided, this section does not apply to:

(a) The owner or operator of a facility used for the disposal of metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.

Note: Metallic mining wastes are regulated under ch. NR 182.

(b) The owner or operator of a facility operating under an interim license, except as provided in ss. NR 680.21(4) and (5) and 680.22.

(3) REGULATORY INTEGRATION. Wherever practicable, the department shall integrate the regulation of surface impoundments under this section with the plan approval process under s. 144.04, Stats., and the permitting process under ch. 147, Stats., to avoid duplicate or contradictory actions or requirements.

(4) GENERAL FACILITY STANDARDS. Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with ss. NR 630.10 to 630.18, 630.21, 630.22, 630.30, 630.31, 630.40, 660.06, 680.06 and 685.05 to 685.08.

(5) INITIAL SITE INSPECTION. Unless specifically exempted under sub. (2), any person proposing to establish a hazardous waste surface impoundment with discharges regulated under ch. 147, Stats., or expand an existing facility shall contact the department to arrange for an initial site inspection.

(6) INITIAL SITE REPORT. Unless specifically exempted under sub. (2), any person wishing to establish a hazardous waste surface impoundment with discharges regulated under ch. 147, Stats., or expand an existing facility, shall comply with s. NR 660.08 if the person wishes to submit an initial site report.

(7) FEASIBILITY REPORT. Unless specifically exempted under sub. (2), any person wishing to establish a hazardous waste surface impoundment with discharges regulated under ch. 147, Stats., or expand an existing facility shall comply with s. NR 660.09.

(8) PLAN OF OPERATION. Unless specifically exempted under sub. (2), any person wishing to establish a hazardous waste surface impoundment with discharges regulated under ch. 147, Stats., or expand an existing facility shall comply with s. NR 660.10, except as follows:

(a) In lieu of compliance with s. NR 660.10(2)(a)7., 10., 11., and 12. and (b), except (b)2.i., j., and k., the following may be submitted:

1. Detailed plans and engineering report describing how the surface impoundment shall be constructed to meet the requirements of sub. (11), including:

- a. The construction of the liner system;
- b. Prevention of overtopping; and
- c. Structural integrity of the dikes.

2. Description of how each surface impoundment, including the liner and cover systems and appurtenances for control of overtopping, shall be inspected in order to meet the requirements of s. NR 660.13(28). This information may be included in the inspection plan submitted under s. NR 680.06(3)(e).

3. A description of the procedure to be used in removing a surface impoundment from service, as required under subs. NR 660.13(30), (31), (32), (33) and (34). This information shall be included in the contingency plan submitted under s. NR 660.10(2)(d).

4. If ignitable or reactive wastes are to be placed in a surface impoundment, an explanation of how sub. (11)(a) shall be complied with.

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5. If incompatible wastes, or incompatible wastes and materials shall be placed in a surface impoundment, an explanation of how s. NR 660.13(4) shall be complied with.

(9) **SUBSTANTIAL COMPLIANCE WITH THE PLAN OF OPERATION.** Unless specifically exempt under sub. (2), the construction of all surface impoundments with discharges regulated under ch. 147, Stats., shall be certified by a qualified engineer as follows:

(a) For existing units, the certification which attests to the structural integrity of each dike, as required under s. NR 660.13(27), shall be submitted with the plan of operation under sub. (8).

(b) For new units the engineer shall provide the certification required under par. (a) upon completion of construction in accordance with the plans and specifications and with the plan of operation under sub. (8).

(10) **RECORDING OF NOTICE.** Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with s. NR 660.12.

(11) **MINIMUM DESIGN AND OPERATIONAL REQUIREMENTS.** Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with s. NR 660.13, except as follows:

(a) In lieu of compliance with s. NR 660.13(3), the owner or operator may comply with the following:

1. Ignitable or reactive waste may not be placed in a surface impoundment, unless the waste is placed in a surface impoundment that is used solely for emergencies or unless the waste is treated, rendered, or mixed before or immediately after placement in the surface impoundment so that:

a. The resulting waste, mixture or dissolution of material no longer meets the criteria of ignitable or reactive waste under s. NR 605.08(2) or (4); and

b. Section NR 630.17(2) is complied with.

(b) In lieu of compliance with s. NR 660.13(6), (8), (10) to (18) and (25) to (27), the owner or operator may comply with the following:

1. A surface impoundment shall have a double liner system that is designed, constructed and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil or groundwater or surface water at any time during the active life, including the closure period of the impoundment. The primary and secondary liners shall be:

a. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients, including static head and external hydrogeologic forces, physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation and the stress of daily operations;

b. Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression or uplift; and

c. Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

2. The owner or operator may be exempted from the requirements of subd. 1. if the department finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together

with location characteristics, shall prevent the migration of any hazardous constituents into the groundwater or surface water at any future time. Exemption requests shall be made by the owner or operator, in accordance with s. NR 680.04, in the feasibility report. In deciding whether to grant an exemption, the department shall consider:

- a. The nature and quantity of the wastes;
- b. The proposed alternate design and operation;
- c. The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the impoundment and groundwater or surface water, and
- d. All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

3. A surface impoundment shall be designed, constructed, maintained and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms and other equipment; and human error.

4. A surface impoundment shall have dikes that are designed, constructed and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity it may not be presumed that the liner system shall function without leakage during the active life of the unit.

5. The department shall specify in the plan of operation approval all design and operating practices that are necessary to ensure that the requirements of this paragraph are satisfied.

6. During construction and installation, liners and cover systems, such as membranes, sheets or coatings, shall be inspected for uniformity, damage and imperfections, such as holes, cracks, thin spots or foreign materials. Immediately after construction or installation:

a. Synthetic liners and covers shall be inspected to ensure tight seams and joints and the absence of tears, punctures or blisters; and

b. Soil-based and admixed liners and covers shall be inspected for imperfections including lenses, cracks, channels, root holes or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(12) **GROUNDWATER AND LEACHATE MONITORING.** The owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with ch. NR 635, unless specifically exempt under s. NR 635.04.

(13) **SPECIAL MONITORING.** Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with s. NR 660.14, when required by the department.

(14) **CLOSURE.** Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with s. NR 660.15 or 660.16, whichever is applicable.

(15) **LONG-TERM CARE.** Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall comply with s. NR 660.17.

(16) **WASTE MANAGEMENT FUND.** Unless specifically exempt under sub. (2), the owner or operator of a surface impoundment with discharges regulated under ch. 147, Stats., shall, if the surface impoundment is

utilized for disposal of hazardous waste, contribute to the waste management fund as specified in s. NR 685.09.

NR 660.20 SPECIAL REQUIREMENTS FOR HAZARDOUS WASTES FO20, FO21, FO22, FO23, FO26 AND FO27. (1) Hazardous wastes FO20, FO21, FO22, FO23, FO26 and FO27 may not be placed in a landfill or surface impoundment unless the owner or operator operates the landfill or surface impoundment in accordance with a management plan for these wastes that is approved by the department pursuant to the standards set out in this section and in accord with all other applicable requirements in chs. NR 600 to 685. The factors to be considered are:

(a) The volume and physical and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(b) The attenuative properties of underlying and surrounding soils or other materials;

(c) The mobilizing properties of other materials co-disposed with these wastes; and

(d) The effectiveness of additional treatment, design or monitoring requirements or techniques.

(2) The department may determine that additional design, operating and monitoring requirements are necessary for landfills and surface impoundments managing hazardous wastes FO20, FO21, FO22, FO23, FO26 and FO27 in order to reduce the possibility of migration of these wastes to groundwater, surface water or air so as to protect human health and the environment.

NR 665 - INCINERATOR STANDARDS

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NR 665.01 PURPOSE. The purpose of this chapter is to specify the requirements and standards that apply to incinerators that burn hazardous waste.

NR 665.02 APPLICABILITY. Except as otherwise provided, this chapter applies to owners and operators of treatment facilities that treat hazardous waste in incinerators. This chapter also applies to owners and operators who burn hazardous waste in boilers or industrial furnaces in order to destroy the hazardous waste or to owners and operators who burn hazardous waste in boilers or industrial furnaces for any recycling purpose and do not receive an exemption under s. NR 665.05(2). This chapter does not apply to solid waste incinerators that treat only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 665.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 665.04 EXEMPTIONS. (reserved)

NR 665.05 GENERAL. (1) GENERAL. Except as otherwise provided in sub.(2), no person may operate or maintain an incinerator for the purpose of burning hazardous wastes unless the person has obtained an interim license, operating license, variance or waiver from the department in accordance with the requirements of s. NR 600.09 and ch. NR 680. Any person who will establish or construct an incinerator for the purpose of burning hazardous waste shall contact the department to arrange for an initial site inspection.

(2) BURNING HAZARDOUS WASTE FOR ENERGY RECOVERY. As provided in ss. NR 625.04 and 625.07, a person burning hazardous waste for energy recovery in boilers or industrial furnaces, except as

provided in s. NR 625.05(2), may be exempted from the requirements of this chapter if a written exemption is obtained from the department.

(3) **WASTES THAT MAY BE BURNED.** The owner or operator of a hazardous waste incinerator may burn only wastes specified in the incinerator's license and only under the operating conditions specified for those wastes in this chapter except in approved trial burns. If the owner or operator of a hazardous waste incinerator has a variance or waiver the owner or operator may burn only the wastes specified in the variance or waiver and only under the operating conditions specified for those wastes in the variance or waiver. Other hazardous wastes may be burned only after obtaining a new license or a license modification.

NR 665.06 FEASIBILITY AND PLAN OF OPERATION REPORT. (1) Unless specifically exempted in s. NR 605.05(2), no person may establish or construct a hazardous waste incinerator or be issued an initial operating license under ch. NR 680 without first obtaining approval of a feasibility and plan of operation report. The purpose of a feasibility and plan of operation report is to determine whether the site has potential for use as a hazardous waste incinerator and to identify and address any operating conditions which are necessary for the proper operation of the facility. Favorable feasibility determination and plan approval under this section does not guarantee final licensure. During the review of the feasibility and plan of operation report, the department shall establish operating conditions for a new hazardous waste incinerator to be effective during the shakedown period, the trial burn period, the post-trial burn period and preliminary operating conditions to be effective during the final operating period. The feasibility and plan of operation report for a hazardous waste incinerator shall be submitted in accordance with s. 144.44, Stats., and ss. NR 680.05(1) and 680.06(3) and shall contain, at a minimum, the following information:

(a) A map or aerial photograph of the area showing land use and zoning within 400 meters ($\frac{1}{4}$ mile) of the site. The map or aerial photograph shall be of sufficient scale to show all homes, industrial buildings, roads and other applicable details and the details shall be identified and indicated on the map or aerial photograph.

(b) A plot plan of the hazardous waste incinerator site including means of limiting access such as fencing, gates, natural barriers; method of acceptably screening the facility from the surrounding area; general layout of equipment and flow pattern; road access; location of existing and proposed utilities serving the incinerator.

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

1. Population, area and entities to be served by the incinerator.
2. Persons responsible for incinerator construction and operation.
3. Estimated quantities and characteristics of wastes resulting from facility operations and methods for their treatment or disposal.
4. Names and locations of all hazardous waste disposal sites and facilities at which hazardous and solid wastes resulting from incinerator operation shall be disposed.
5. Incinerator specifications including the manufacturer, model, capacity, incinerator dimensions, expected combustion temperature, the flue gas flow rate, monitoring methods used to comply with s. NR 665.09(13) and any air pollution control devices that shall be used.
6. Expected operating schedule.

(d) For the purpose of determining the feasibility of compliance with the performance standards of this section and determining adequate operating conditions, applicants shall propose a trial burn plan, which includes the following information:

1. An analysis of each waste or mixture of waste to be burned during the trial burn and during normal operation which includes:

a. Heat value of the waste in the form and composition in which it shall be burned.

b. Viscosity, if applicable, or description of physical form of the waste.

c. Composition and quantity of hazardous waste or mixtures of hazardous waste to be incinerated. The composition of each waste or mixture of wastes shall include an analysis for heating value, chlorine, sulfur content, ash content and any hazardous constituent listed in table VI in s. NR 605 - Appendix IV.

d. An identification of any hazardous organic constituents listed in ch. NR 605, Appendix IV, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in ch. NR 605, Appendix IV which would reasonably not be expected to be found in the waste. The constituents excluded from analysis shall be identified, and the basis for the exclusion stated. The waste analysis must rely on analytical techniques specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, SW-846" or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA-600/8-84-002."

Note: This publication is available from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

2. An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, SW-846" or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA-600/8-84-002".

Note: The first publication is available from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The second publication is available from:

The National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

These publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

3. A detailed engineering description of the incinerator, including:

a. Manufacturer's name and model number of incinerator, if available.

b. Type of incinerator.

c. Linear dimensions of the incinerator unit including the cross sectional area of the combustion chamber.

d. Description of the auxiliary fuel system type/feed.

e. Capacity and type of prime mover.

f. Description of automatic waste feed cut-off systems.

g. Stack gas monitoring and pollution control equipment.

h. Nozzle and burner design.

i. Construction materials.

j. Location and description of temperature, pressure and flow indicating and control devices.

4. A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, sampling and monitoring equipment to be used, sampling and monitoring frequency and planned analytical procedures for sample analysis.

5. A detailed test schedule for each waste for which the trial burn is planned including dates, duration, quantity of waste to be burned and other factors relevant to the department's decision under sub. (3).

6. A detailed trial burn protocol, including for each waste identified, the ranges of combustion temperature, waste feed rate expected, carbon monoxide level in the exhaust gas, combustion gas velocity, use of auxiliary fuel and any other relevant parameters that shall be varied to affect the destruction and removal efficiency of the incinerator.

7. A description of, and planned operating conditions for, any pollution and emission control equipment which shall be used.

8. Procedures for rapidly stopping waste feed, shutting down the incinerator and controlling emissions in the event of an equipment malfunction.

9. The department, in reviewing the trial burn plan, shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this section.

(e) In lieu of the trial burn requirements in par. (d), the applicant may submit the following information:

1. An analysis of each waste or mixture of wastes to be burned including:

a. Heat value of the waste in the form and composition in which it shall be burned.

b. Viscosity, if applicable, or description of physical form of the waste.

c. An identification of any hazardous organic constituents listed in table VI in ch. NR 605 - Appendix IV, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in table VI which would reasonably not be expected to be found in the waste. The constituents excluded from analysis shall be identified and the basis for their exclusion stated. The waste analysis shall

rely on analytical techniques specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, SW-846" or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA-600/8-84-002".

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These publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

d. An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, SW 846", or "Sampling and Analysis Methods for Hazardous Waste combustion, EPA-600/8-84-002."

e. A quantification of those hazardous constituents in the waste which may be designated as principal organic hazardous constituents (POHCs) based on data submitted from other trial or operational burns which demonstrate compliance with the performance standards of this section.

2. A detailed engineering description of the incinerator, including:

a. Manufacturer's name and model number of incinerator.

b. Type of incinerator.

c. Linear dimensions of incinerator unit including cross sectional area of the combustion chamber.

d. Description of auxiliary fuel system type/feed.

e. Capacity of prime mover.

f. Description of automatic waste feed cutoff systems.

g. Stack gas monitoring and pollution control equipment.

h. Nozzle and burner design.

i. Construction materials.

j. Location and description of temperature, pressure and flow indicating devices and control devices.

3. A description and analysis of the waste to be burned compared with the waste for which data from operational or trial burns are provided to support the contention that a trial burn is not needed. The data shall include those items listed in subd. 1. This analysis shall specify the POHCs which the applicant has identified in the waste for which an operating license is sought, and any differences from the POHCs in the waste for which burn data are provided.

4. The design and operating conditions of the incinerator unit to be used, compared with that for which comparative burn data are available.

5. A description of the results submitted from any previously conducted trial burns including:

a. Sampling and analysis techniques used to calculate performance standards in s. NR 665.09(13).

b. Methods and results of monitoring temperatures, waste feed rates, carbon monoxide and an appropriate indicator of combustion gas velocity, including a statement concerning the precision and accuracy of this measurement.

6. The expected incinerator operational information to demonstrate compliance with s. NR 665.09, including:

a. Expected carbon monoxide (CO) level in the stack exhaust gas.

b. Waste feed rate.

c. Combustion zone temperature.

d. Indication of combustion gas velocity.

e. Expected stack gas volume, flow rate and temperature.

f. Computed residence time for waste in the combustion zone.

g. Expected hydrochloric acid removal efficiency.

h. Expected fugitive emissions and their control procedures.

i. Proposed waste feed cut-off limits based on the identified significant operating parameters.

7. Supplemental information as the department finds necessary to achieve the purposes of this paragraph.

8. Waste analysis data, including that submitted in subd. 1., sufficient to allow the department to specify as licensed POHCs those constituents for which destruction and removal efficiencies shall be required.

(f) The department may approve a feasibility and plan of operation report without a trial burn plan if the information submitted under par. (e) is provided and if it is found that:

1. The wastes are sufficiently similar; and

2. The incinerator units are sufficiently similar, and the data from other trial burns are adequate to specify operating conditions that ensures that the performance standards of s. NR 665.09(13) will be met by the incinerator.

(g) Appurtenances and procedures intended to store hazardous waste beyond the end of the working day and to control dust, odors, and fire outside the burning chamber.

(h) Waste changing methods during incinerator operation.

(i) Provisions for interim waste storage or disposal when the incinerator is unavailable, including:

1. Type of storage or disposal.
2. Location of storage or disposal facility.
3. Capacity of the storage facility.
4. Daily clean-up procedures.
5. Incinerator inspection, maintenance and monitoring plans and procedures.
6. Detailed drawings and specifications of all structures, equipment and the facility.
7. A report which includes furnace design criteria and expected performance data, including emission data.
8. A waste analysis plan that shall ensure compliance as specified in s. NR 630.20(1).
9. A contingency plan as specified in s. NR 630.22(1).
10. Proposed site closure plans addressing the items specified in s. NR 640.06.

(j) A statement which suggests operating conditions necessary to operate in compliance with the performance standards of s. NR 665.09(13) during both the shakedown period and the post-trial burn period in accordance with s. NR 665.07(1) and (3).

(2) Based on the waste analysis data in the trial burn plan, the department shall specify as trial principal organic hazardous constituents (POHCs), those constituents for which destruction and removal efficiencies shall be calculated during the trial burn. These trial POHCs shall be specified by the department based on an estimate of the difficulty of incineration of the constituents identified in the waste analysis, their concentration or mass in the waste feed, and for wastes listed in s. NR 605.09 the hazardous waste organic constituent or constituents identified in ch. NR 605, Appendix III as the basis for listing.

(3) The department shall approve a trial burn plan if it finds that:

(a) The trial burn is likely to determine whether the incinerator performance standards required in s. NR 665.09 can be met;

(b) The trial burn itself does not present an imminent hazard to human health or the environment;

(c) The trial burn will help the department to determine operating requirements to be specified under s. NR 665.09 and

(d) The information sought in pars. (a) and (c) cannot reasonably be developed through other means.

(4) For the purposes of determining compliance with the performance standards of s. NR 665.09 and determining adequate operating conditions under s. NR 665.09, any person who submits a feasibility and plan of operation report for an existing hazardous waste incinerator operating under an interim license or a variance shall prepare and submit a trial burn plan and perform a trial burn in accordance with subs. (1)(d), (2) and (3) and s. NR 665.07(2). Persons who submit trial burn plans and receive approval before submission of a feasibility and plan of operation report shall complete the trial burns and submit the results, specified in s. NR 665.07(2), with the feasibility and plan of operation report. If completion of this process conflicts with the date set for submission of the feasibility and plan of operation report, the department shall

be notified and may establish a later date for submission of the feasibility and plan of operation report or the trial burn results. Trial burn results shall be submitted prior to the issuance of a license. If the trial burn plan is to be included with the feasibility and plan of operation report, the trial burn shall be conducted and the results submitted within a time period to be specified by the department.

(5) Within 60 days after a feasibility and plan of operation report is submitted, the department shall either determine that the report is complete or notify the applicant in writing that the report is not complete, specifying the information which the applicant shall submit before the report is deemed complete. The department shall determine whether or not the feasibility and plan of operation report is complete by determining whether or not the minimum requirements of this section have been met. Additional feasibility and plan of operation information may be required of the applicant after a determination that the feasibility and plan of operation report is complete only if the department establishes that a detailed review of the feasibility and plan of operation report indicates that feasibility cannot be determined and the report is insufficient in the absence of additional information.

(6) If no hearing has been conducted under s. 144.44, Stats., the department shall issue the final determination for the feasibility and plan of operation report within 60 days after the 45 day notice period required under s. 144.44(2)(l) and (m), Stats., has expired. If an informational hearing is conducted under s. 144.44(2g), Stats., the department shall issue a final determination for the feasibility and plan of operation report within 60 days after the hearing is adjourned. If a contested case hearing is conducted under s. 144.44(2r), Stats., a final determination for the feasibility and plan of operation report shall be issued within 90 days after the hearing is adjourned.

NR 665.07 INCINERATOR LICENSES AND FINAL PLAN APPROVAL. Once the feasibility determination and initial plan of operation approval have been made and all other necessary requirements in s. NR 680.31(1) have been met, an application for a hazardous waste incinerator license may be submitted. The incinerator license shall cover the shakedown period following construction of a proposed facility, the trial burn period, the post-trial burn period and the final operational period. The department shall review the feasibility and plan of operation report and initial plan approval to ensure that the final incinerator plan approval and license includes the following information:

(1) SHAKEDOWN PERIOD. (a) For the purposes of determining operational readiness following completion of physical construction, the department shall establish operating plan approval conditions, including but not limited to allowable waste feeds and operating conditions, in the plan approval for a new hazardous waste incinerator. These plan approval conditions shall be effective for the minimum time required to bring the incinerator to a point of operational readiness sufficient to conduct a trial burn, not to exceed 720 hours operating time for treatment of hazardous waste. The department may extend the duration of this operational period once, for up to 720 additional hours, at the request of the applicant when good cause is shown. The plan approval may be modified to reflect the extension.

(b) Applicants shall include a statement, with the feasibility and plan of operation report, which suggests the conditions necessary to operate in compliance with the performance standards of s. NR 665.09 during this period. This statement shall include, at a minimum, restrictions on waste constituents, waste feed rates and the operating parameters identified in s. NR 665.09.

(c) The department shall review the statement described in par. b. and any other relevant information submitted with the feasibility and plan of operation report and specify requirements for this period sufficient to meet the performance standards of s. NR 665.09 based on its engineering judgment.

(2) TRIAL BURN PERIOD. The trial burn shall be conducted as specified in the approved trial burn plan in the feasibility and plan of operation report. Any deviations from the approved trial burn plan shall be

carefully noted and the reason for the deviation fully explained. In order for the department to evaluate the trial burn, the following information shall be submitted to the department:

(a) During each approved trial burn, or as soon after the burn as is practicable, the applicant shall make the following determinations and shall submit them to the department:

1. A quantitative analysis of the trial POHCs in the waste feed to the incinerator.
2. A quantitative analysis of the exhaust gas for the concentration and mass emissions of the trial POHCs, oxygen (O₂) and hydrogen chloride (HCl).
3. A quantitative analysis of the scrubber water, if any, ash residues and other residues for the purpose of estimating whether the trial POHCs were destroyed, removed, transformed or unchanged.
4. A computation of destruction and removal efficiency (DRE), in accordance with the DRE formula specified in s. NR 665.09(13).
- 5.a. A computation of hydrogen chloride (HCL) removal showing the HCl emission rate does not exceed 1.8 kilograms of HCl per hour (4 pounds per hour); or
- b. If the HCL emission rate exceeds 1.8 kilograms (4 pounds) of HCL per hour, a computation showing the HCL removal efficiency is 99% or greater in accordance with s. NR 665.09(13)(c).
6. A computation of particulate emissions, in accordance with the formula specified in s. NR 665.09(13).
7. An identification of sources of fugitive emissions and their means of control.
8. A measurement of average, maximum and minimum temperatures and combustion gas velocity.
9. A continuous measurement of carbon monoxide (CO) in the exhaust gas.
10. All sampling and analysis shall be done in accordance with 40 CFR Part 60, Appendix A - Reference Methods or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA-600/8-84-002".

Note: The publication containing the regulation may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The second publication may be obtained from:

The National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

These publications are available for inspection at the offices of the department, the secretary of state and the revisor of statutes.

(b) The applicant shall submit other information as the department may specify as necessary to ensure that the trial burn shall comply with the performance standards in this section and to establish the operating conditions necessary to meet these performance standards.

(c) The applicant shall submit to the department a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and shall submit the results of all the determinations required. This submission shall be made within 90 days of completion of the trial burn or later if approved by the department.

(d) All data collected during any trial burn shall be submitted to the department following the completion of the trial burn.

(e) All submissions required by this section shall be certified on behalf of the applicant by the signature of a person authorized to sign a license application in accordance with s. NR 680.05(2).

(f) Based on the results of the trial burn, the department shall set the operating requirements in the final plan approval.

(3) **POST-TRIAL BURN PERIOD.** (a) For the purposes of allowing operation of a new hazardous waste incinerator following completion of the trial burn and prior to final modification of the plan approval conditions to reflect the trial burn results, the department may establish plan approval conditions, including but not limited to allowable waste feeds and operating conditions sufficient to meet the requirements of s. NR 665.09 in the plan approval for a hazardous waste incinerator. These plan approval conditions shall be effective for the minimum time required to complete sample analysis, data computation and submission of the trial burn results by the applicant, and modification of the incinerator plan approval by the department.

(b) Applicants shall submit a statement, in a plan approval modification request, which identifies the conditions necessary to operate in compliance with the performance standards of s. NR 665.09 during this period. This statement shall include, at a minimum, restrictions on waste constituents, waste feed rates and the operating parameters identified in this section.

(c) The department shall review the statement described in par. b. and any other relevant information submitted with the modification request and specify those operating conditions for this period most likely to meet the performance standards of s. NR 665.09(13) based on its engineering judgment.

(4) **FINAL OPERATION PERIOD.** The department shall take action on the plan approval modification request if the modification request is supported by the results of the trial burn and other relevant information. The modification request shall be incorporated into the plan approval. Following modification, the plan approval shall specify final operating conditions for the final hazardous waste incinerator license.

NR 665.08 PRINCIPAL ORGANIC HAZARDOUS CONSTITUENTS (POHCs). (1) Principal organic hazardous constituents (POHCs) in the waste feed shall be treated to the extent required by s. NR 665.09(13).

(2)(a) One or more POHCs will be specified in the facility's license, from among those constituents listed in ch. NR 605, Appendix IV, for each waste feed to be burned. This specification will be based on the degree of difficulty of incineration of the organic constituents in the waste and on their concentration or mass in the waste feed, considering the results of waste analyses and trial burns or alternative data submitted with the feasibility report and plan of operation report requirements of ss. NR 665.06 and 665.07 of the facility's license application.

Note: Organic constituents which represent the greatest degree of difficulty of incineration will be those most likely to be designated as POHCs. Constituents are more likely to be designated as POHCs if they are present in large quantities or concentrations in the waste.

(b) Trial POHCs will be designated for performance of trial burns in accordance with the procedure specified in ss. NR 665.06(1)(d) and (2) to (4) and 665.07 for obtaining plan of operation approval.

NR 665.09 OPERATIONAL REQUIREMENTS. No person may operate or maintain an incinerator except in conformity with the following minimum requirements and with the terms and conditions of any plan approval and license for the facility:

(1) The incinerator shall be so situated, equipped, operated and maintained as to minimize interference with other activities in the area.

(2) A sign shall be posted at the entrance to the facility, which indicates the name, license number and hours of operation of the facility.

(3) All hazardous waste shall be confined to the designated storage area.

(4) Hazardous waste, except for that in the process line, shall be stored only in storage tanks or containers in accordance with chs. NR 640 and 645.

(5) Before adding hazardous waste, the owner or operator shall bring the incinerator to steady state, normal conditions of operation, including steady state temperature and air flow, using auxiliary fuel or other means.

(6) Records shall be maintained for a minimum of 3 years, including records of the weights of material incinerated, the quantity of resulting residue, hours of plant operation and other pertinent information.

(7) Records shall be kept detailing all training required by employees who are involved with the operation of the incinerator. These records shall include:

(a) Required training; and

(b) Courses attended.

(8) Adequate equipment shall be provided in the storage and charging areas and elsewhere as needed to allow cleaning after each day of operation or as may be required in order to maintain the plant in a sanitary condition.

(9) The charging openings, as well as all equipment throughout the plant, shall be provided with adequate safety equipment as prescribed in ch. Ind 1.

(10) Upon completion of construction of a new incinerator and at least 10 days prior to initial operation, the department shall be notified to allow inspection of the incinerator both prior to and during any performance tests and initial operation.

(11) The owner or operator shall conduct, at a minimum, the following monitoring and inspections when incinerating hazardous waste:

(a) Combustion temperature, waste feed rate and the indicator of combustion gas velocity shall be monitored on a continuous basis.

(b) Carbon monoxide (CO) shall be monitored on a continuous basis at a point downstream of the combustion zone and prior to release to the atmosphere.

(c) Upon request by the department sampling and analysis of the waste and exhaust gas to verify the operating conditions required by sub. (13) are being met.

(d) The complete incinerator and associated equipment, such as pumps, valves, conveyors and pipes, shall be inspected at least daily for leaks, spills and fugitive emissions, and all emergency shutdown controls and system alarms shall be checked to assure proper operation.

(e) Equipment identified in subds. 1. to 10. shall be inspected on a weekly basis unless it is shown less frequent inspection shall be adequate and it can be shown that weekly inspections would unduly restrict or upset operations. At a minimum, this equipment shall be inspected monthly. Records documenting these inspections shall be maintained for:

1. The emergency waste feed cutoff system and associated alarms.
2. Waste flow monitors and records.
3. Auxiliary fuel flow monitors.
4. Combustion gas flow monitors.
5. Temperature monitors.
6. Flame sensors.
7. CO monitors and records.
8. Pressure differential indicators.
9. Pressure sensors.
10. Ammeters for measuring blowers current draw.

(f) The monitoring and inspection data shall be recorded and placed in an operating log as required by s. NR 630.31.

(g) The owner or operator of each incinerator with an interim license shall monitor existing instruments which relate to the combustion and emission control at least every 15 minutes. Appropriate corrections to maintain steady state combustion conditions shall be made immediately either automatically or by the operator.

Note: Instruments which relate to combustion and emission control would normally include those measuring waste feed, auxiliary fuel feed, air flow, incinerator temperature, scrubber flow, scrubber pH and relevant level controls.

Note: Owners and operators of interim license facilities also need to comply with par. (d) for monitoring and inspection. Complete interim license requirements are in s. NR 680.22.

(12) The incinerator shall be operated with a functioning device to automatically cut off waste feed to the incinerator when there is a deviation from or the limits are exceeded for flame combustion temperature, combustion gas velocity, excess CO level, increased waste feed rate or scrubber water pressure or any other operating conditions, as specified in the approved plan of operation.

(13)(a) An incinerator which burns a waste which contains a hazardous constituent listed in table VI in s. NR 605 - Appendix IV, shall be designed, constructed and operated to maintain a destruction and removal

efficiency of 99.99% for each principal organic hazardous constituent (POHC) designated under s. NR 665.08 in its license for each waste feed. DRE is determined for each POHC from the following equation:

$$DRE = \frac{W_{in} - W_{out}}{W_{in}} \times 100$$

Where: DRE = destruction and removal efficiency

W_{in} = mass feed rate of the principal organic hazardous constituent (POHC) designated pursuant to s. NR 665.06(2) or of waste going into the incinerator

W_{out} = mass emissions rate of the same POHC in the exhaust emission prior to waste exiting from release to the atmosphere.

(b) An incinerator burning hazardous waste FO20, FO21, FO22, FO23, FO26 or FO27 shall achieve a destruction and removal efficiency (DRE) of 99.9999% for each principal organic hazardous constituent (POHC) designated under s. NR 665.08 in its feasibility and plan of operation report. This performance shall be demonstrated on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. DRE is determined for each POHC from the equation in s. NR 665.08(13)(a). In addition, the owner or operator of the incinerator shall notify the department of the intent to incinerate hazardous waste FO20, FO21, FO22, FO23, FO26 or FO27.

(c) An incinerator burning hazardous waste and producing stack emissions of more than 1.8 kilograms per hour (4 pounds per hour) of hydrogen chloride (HCl) shall control HCl emissions so that the rate of emission is no greater than the larger of either 1.8 kilograms per hour or 1% of the HCl in the stack gas prior to entering any pollution control equipment.

(d) An incinerator shall be operated in a manner ensuring that emissions of particulate matter corrected to 7% O₂ in the stack gas, do not exceed 180 milligrams per dry standard cubic meter, when corrected for the amount of oxygen in the stack gas according to the formula:

$$P_c = P_m \times \frac{14}{21-y}$$

Where P_c is the corrected concentration of particulate matter, P_m is the measured concentration of particulate matter, and y is the measured concentration of oxygen in the stack gas, using the Orsat method for oxygen analysis of dry flue gas. This correction procedure is to be used by all hazardous waste incinerators except those operating under conditions of oxygen enrichment. For incinerators operating under conditions of oxygen enrichment, the department will select an appropriate correction procedure to be specified in the facility license.

(e) An incinerator shall be operated in a manner ensuring that emissions of particulate matter comply with all appropriate air management rules contained in chs. NR 400 to 499.

(14) An incinerator shall be operated in accordance with the operating requirements specified in the license and any plan approval. Each set of operating requirements shall be sufficient to comply with the performance standards of s. NR 665.09(13) and shall specify the composition of waste to which the operating requirements apply. Throughout normal operation the owner or operator shall conduct sufficient waste analysis to verify that the waste feed to the incinerator is within the physical and chemical composition limits specified in the license and any plan approval.

(15) Based upon the results of the analysis and trial burns required by sub. (16) the department shall specify acceptable operating limits including the following conditions:

- (a) Carbon monoxide (CO) level in the stack exhaust gas;
- (b) Waste feed rate;
- (c) Combustion temperature;
- (d) An appropriate indicator of combustion gas velocity;
- (e) Allowable variations in incinerator design or operating procedures; and

(f) Other operating requirements as are necessary to ensure compliance with this section. All sampling and analysis shall be done in accordance with 40 CFR Part 60 Appendix A, Reference Methods, or "Sampling and Analysis Methods for Hazardous Waste Combustion, EPA-600/8-84-200".

Note: The publication containing the regulation may obtained from:

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(16) For any new wastes or mixtures of wastes not previously incinerated, the owner or operator shall fulfill the following requirements:

(a) The owner or operator shall supply the following information to the department for any hazardous waste or mixture of hazardous waste not previously burned;

1. The heat value of the waste in the form and composition in which it shall be burned;
2. Identification and quantification of any hazardous constituent listed in table VI in s. NR 605 - Appendix IV except for any constituent which would not reasonably be expected to be present. Any constituent excluded from the analysis shall be identified and the reason for its exclusion stated;
3. For interim license incinerators, the halogen content and sulfur content in the waste; and
4. For interim license incinerators, concentrations in the waste of lead and mercury, unless the owner or operator has written documentation data that show that the element is not present.

Note: Complete interim license requirements are in s. NR 680.22.

(b) Based on the information submitted in accordance with par. (a), the department shall specify the principal hazardous constituents for which the destruction and removal efficiency shall be calculated as required in sub. (13)(a).

(c) Either:

1. The owner or operator shall conduct a trial burn to demonstrate compliance with sub. (13)(a). Prior to the trial burn, the owner or operator shall submit for departmental approval a trial burn plan specifying how the following required information shall be obtained from the trial burn:

a. A quantitative analysis in the waste feed for any principal hazardous constituents designated by the department pursuant to par. (b).

b. A quantitative analysis of the exhaust gas for the concentration and mass emissions of the principal hazardous constituents, carbon monoxide and oxygen.

c. A computation of the destruction and removal efficiency for each principal hazardous constituent.

d. A measurement of average, maximum and minimum combustion temperature and the combustion gas velocity and waste feed rates.

e. A continuous measurement of carbon monoxide in the exhaust gas.

f. Any other information the department deems necessary to document compliance with sub. (13)(a), or

2. Submit for departmental approval the results of a trial burn conducted on a similar waste burned under conditions the owner or operators incinerator can maintain. The trial burn shall meet the requirements of subd. 1.

(17) During start-up and shut-down of an incinerator, hazardous waste may not be fed into the incinerator unless the incinerator is operating within the conditions of operation, such as temperature and air feed rate, specified in the license or plan approval.

(18) Fugitive emissions from the combustion zone shall be controlled by:

(a) Keeping the combustion zone totally sealed against fugitive emissions;

(b) Maintaining a combustion zone pressure lower than atmospheric pressure; or

(c) An alternate means of control demonstrated to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(19) An incinerator shall cease operation when changes in waste feed, incinerator design, or operating conditions exceed limits designated in its license or plan approval.

(20) An incinerator shall be designed and operated to meet the applicable design and operational requirements specified in s. NR 640.06.

NR 665.10 CLOSURE. (1) Unless specifically exempt under s. NR 665.05(2), the owner or operator of a hazardous waste incinerator shall meet the requirements specified in s. NR 685.05 and shall, at the completion of closure, remove from the facility all hazardous waste and hazardous waste residues, including, but not limited to, ash, scrubber waters and scrubber sludges.

(2) The owner or operator of a facility that treats hazardous waste shall, at completion of closure, remove all hazardous waste and hazardous waste residues, including, but not limited to, ash and sludges,

from the treatment process or equipment, discharge control equipment and discharge confinement structures. The department may require monitoring of ground or surface waters, if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

Note: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with s. NR 605.04(3), that the residue removed from the incinerator is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and shall manage it in accordance with applicable requirements of chs. NR 600 to 685.

NR 670 - MISCELLANEOUS UNIT STANDARDS

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NR 670.01 PURPOSE. The purpose of this chapter is to specify the requirements that apply to facilities not otherwise specified in chs. NR 600 to 685.

NR 670.02 APPLICABILITY. The requirements in this chapter apply to owners and operators of facilities that treat, store or dispose of hazardous waste in miscellaneous units. This chapter does not apply to solid waste facilities that treat, store or dispose of only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 670.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 670.04 EXEMPTIONS. (Reserved)

NR 670.05 GENERAL. The requirements of this chapter apply to facilities not specifically covered by ch. NR 610, 615, 625, 630, 640, 645, 655, 660 or 665. Before any method of hazardous waste treatment, storage or disposal not otherwise provided for in ch. NR 610, 615, 625, 630, 640, 645, 655, 660 or 665 is established, the department shall require the applicant to conduct a feasibility study. If the proposal is determined by the department to be feasible, a plan of operation including complete plans, specifications and design data for the project detailing information as site preparation, operation, monitoring, closure and long-term care shall be submitted to and be approved in writing by the department prior to construction or operation. An initial plan review fee and operating license fee as specified in s. NR 680.45 shall be submitted for each proposal. Prior to operation of the facility, an operating license, variance or waiver is required. The facility and its operation shall conform to the department approved plan.

NR 670.06 FEASIBILITY AND PLAN OF OPERATION REPORT FOR MISCELLANEOUS TREATMENT OR STORAGE UNITS. No person may establish or construct a miscellaneous unit for the treatment or storage of hazardous waste, expand an existing facility or be issued an initial operating license under s. NR 680.32 without first obtaining approval of a feasibility and plan of operation report. The purpose of the feasibility and plan of operation report is to determine whether the site has potential for use as a miscellaneous unit and to identify and address any operating conditions which are necessary for the proper operation of the facility. Favorable feasibility determination and plan approval under this section does not guarantee final licensure. The feasibility and plan of operation report for a miscellaneous unit shall be submitted in accordance with s. 144.44, Stats., and ss. NR 680.05(1) and 680.06(3) and shall contain, at a minimum, the following information:

(1) A detailed description of the unit being used or proposed for use, including:

(a) Physical characteristics, materials of construction and dimensions of the unit;

(b) Detailed plans and engineering reports describing how the unit shall be located, designed, constructed, operated, maintained, monitored, inspected and closed to comply with ss. NR 670.07 and 670.08; and

(2) Detailed hydrologic, geologic and meteorologic assessments and land-use maps for the region surrounding the site that address and ensure compliance of the unit with s. NR 670.07. If the applicant can demonstrate to the satisfaction of the department that the facility does not violate s. NR 670.07, then preliminary hydrologic, geologic and meteorologic assessments shall suffice.

(3) Information on the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents including the potential magnitude and nature of exposures.

(4) For any treatment unit, a report on a demonstration of the effectiveness of the treatment based on laboratory or field data.

(5) Any additional information determined by the department to be necessary for evaluation of compliance of the unit with the performance standards of s. NR 670.07.

NR 670.07 FEASIBILITY REPORT AND PLAN OF OPERATION REQUIREMENTS FOR MISCELLANEOUS DISPOSAL UNITS. No person may establish or construct a miscellaneous unit for the disposal of hazardous waste, expand an existing facility or be issued an initial operating license under s. NR 680.32 without first obtaining approval of a feasibility report describing the physical conditions of the proposed facility and subsequently obtaining approval of a plan of operation from the department. Unless otherwise approved, the feasibility report shall contain the information specified in s. NR 660.09 and the plan of operation shall contain the information specified in s. NR 660.10.

NR 670.08 MISCELLANEOUS UNIT STANDARDS. A miscellaneous unit shall be located, designed, constructed, operated, maintained and closed in a manner that shall ensure protection of human health and the environment. Licenses for miscellaneous units are to contain terms and provisions necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. License terms and provisions shall include those

requirements of chs. NR 640 to 665, and ch. NR 680 that are appropriate. Protection of human health and the environment includes, but is not limited to:

(1) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater or subsurface environment, considering:

(a) The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners or other containing structures;

(b) The hydrologic and geologic characteristics of the unit and the surrounding area;

(c) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;

(d) The quantity and direction of groundwater flow;

(e) The proximity to and withdrawal rates of current and potential groundwater users;

(f) The patterns of land use in the region;

(g) The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food-chain crops and other vegetation;

(h) The potential for health risks caused by human exposure to waste constituents; and

(i) The potential for damage to domestic animals, wildlife, crops, vegetation and physical structures caused by exposure to waste constituents;

(2) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:

(a) The volume and physical and chemical characteristics of the waste in the unit;

(b) The effectiveness and reliability of containing, confining and collecting systems and structures in preventing migration;

(c) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;

(d) The patterns of precipitation in the region;

(e) The quantity, quality and direction of groundwater flow;

(f) The proximity of the unit to surface waters;

(g) The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;

(h) The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;

(i) The patterns of land use in the region;

(j) The potential for health risks caused by human exposure to waste constituents; and

(k) The potential for damage to domestic animals, wildlife, crops, vegetation and physical structures caused by exposure to waste constituents.

(3) Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:

(a) The volume and physical and chemical characteristics of the waste in the unit, including the waste's potential for the emission and dispersal of gases, aerosols and particulates;

(b) The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;

(c) The operating characteristics of the unit;

(d) The atmospheric, meteorologic and topographic characteristics of the unit and the surrounding area;

(e) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;

(f) The potential for health risks caused by human exposure to waste constituents; and

(g) The potential for damage to domestic animals, wildlife, crops, vegetation and physical structures caused by exposure to waste constituents.

NR 670.09 MONITORING, ANALYSIS, INSPECTION, RESPONSE, REPORTING AND CORRECTIVE ACTION. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies shall ensure compliance with ss. NR 630.15, 630.20, 630.21, 630.22 and 670.06 and ch. NR 635 as well as compliance with any additional requirements necessary to protect human health and the environment as specified in the license.

NR 670.10 CLOSURE AND LONG-TERM CARE. (1) The owner or operator of a facility that treats hazardous waste shall, at completion of closure, remove all hazardous waste and hazardous waste residues, including, but not limited to, ash and sludges, from the treatment process or equipment, discharge control equipment and discharge confinement structures. The department may require monitoring of ground or surface waters if the operation or design of the facility in relation to the hazard of wastes handled at the facility warrants monitoring.

(2) A miscellaneous unit that is a disposal unit shall be maintained in a manner that complies with s. NR 670.06 during the long-term care period. If a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated during closure, the unit shall also meet the requirements of s. NR 670.06 during the long-term care period. The long-term care plan under s. NR 685.05 and the closure plan under s. NR 685.06 shall specify the procedures that shall be used to satisfy this requirement.

NR 670.11 THERMAL TREATMENT IN OTHER THAN INCINERATOR. (1) GENERAL. Except as provided in s. NR 665.09(20), the treatment facility standards contained in ch. NR 630 apply to facilities that thermally treat hazardous waste in devices other than incinerators and to facilities that treat hazardous

wastes by some chemical, physical or biological means in other than surface impoundments. Except as provided in ss. NR 630.04, no person may operate or maintain a hazardous waste treatment facility unless the person has obtained an interim license, operating license, variance or waiver from the department, in accordance with the requirements of ch. NR 680. Any person who will establish or construct a hazardous waste treatment facility shall contact the department to arrange for an initial site inspection.

(2) MINIMUM REQUIREMENTS FOR FACILITY DESIGN AND OPERATION. (a) In addition to the waste analysis required by s. NR 630.12, the owner or operator shall sufficiently analyze any waste which has not been previously treated in the thermal process to enable the establishment of steady state or other appropriate operating conditions for a discontinuous process, including waste and auxiliary fuel feed, and to determine the type of pollutants which may be emitted. At a minimum, the analyses shall determine:

1. The heating value of the hazardous waste;

2. Halogen and sulfur content of the waste; and

3. Concentrations of heavy metals, such as lead, mercury, cadmium and chromium, unless the owner or operator has written documented data to show that the element is not present.

(b) Before adding hazardous waste to a thermal treatment process, the owner or operator shall bring the system to steady state or normal conditions of operation, including steady state operating temperature, using auxiliary fuel or other means, unless the process is a discontinuous, or batch, thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste.

(c) Thermal treatment facilities shall be designed and operated to provide adequate temperature and residence time in the combustion chamber to assure complete processing. Thermal treatment facilities shall be equipped with necessary air pollution control equipment to produce a noncombustible residue, result in an odor free operation and meet state air pollution control regulations found in chs. NR 400 to 499.

(d) The owner or operator shall conduct, at a minimum, the following monitoring and inspections when thermally treating hazardous waste:

1. Instruments which relate to temperature and emission control shall be monitored at least every 15 minutes. Appropriate corrections to maintain steady state or other appropriate thermal treatment conditions shall be made immediately, either automatically or by the operator. Instruments which relate to temperature and emission control include, but are not limited to, those measuring waste, feed, auxiliary fuel feed, treatment process temperature, and relevant process flow and level controls.

2. The stack plume and emissions, where present, shall be observed visually at least hourly for normal appearance, color and opacity. The operator shall immediately make any indicated operating corrections necessary to return any visual emissions to their normal appearance.

3. The complete thermal treatment process and associated equipment, such as pumps, valves, conveyors and pipes, shall be inspected at least daily for leaks, spills and fugitive emissions, and all emergency shutdown controls and system alarms shall be checked to assure proper operation.

(e) All hazardous waste, with the exception of waste in the process line, shall be stored in conformity with chs. NR 630 to 685.

NR 675 - LAND DISPOSAL RESTRICTIONS

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NR 675.01 PURPOSE. The purpose of this chapter is to identify hazardous wastes that are restricted from land disposal and define those limited circumstances under which an otherwise prohibited waste may continue to be disposed on land.

NR 675.02 APPLICABILITY. Except as specifically provided, the requirements of this chapter apply to generators and transporters of hazardous waste and owners and operators of hazardous waste treatment, storage or disposal facilities. This chapter does not apply to solid waste generators, transporters or solid waste treatment, storage or disposal facilities that generate, transport or receive only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 675.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 675.04 EXEMPTIONS. (1) Wastes which are otherwise prohibited from land disposal under this chapter may be treated in a surface impoundment or series of impoundments provided that:

(a) The following conditions are met:

1. 'Sampling and testing.' For wastes with treatment standards in ss. NR 675.20 to 675.24 or prohibition levels in ss. NR 675.10 to 675.14 or both, the residues from treatment shall be analyzed as specified in s. NR 675.07 or s. NR 675.12 to determine if they meet the applicable treatment standards or, where no treatment standards have been established for the waste, the applicable prohibition levels. The sampling method, specified in the waste analysis plan under s. NR 630.13, shall be designed such that representative samples of the sludge and the supernatant are tested separately rather than mixed to form homogeneous samples.

2. 'Removal.' The following treatment residues, including any liquid waste, shall be removed at least annually: residues which do not meet the treatment standards promulgated under ss. NR 675.20 to 675.24; residues which do not meet the prohibition levels established under ss. NR 675.10 to 675.14 or imposed by statute where no treatment standards have been established; residues which are from the treatment of wastes prohibited from disposal on land under ss. NR 675.10 to 675.14 where no treatment standards have been established and no prohibition levels apply; or residues from managing listed wastes which are not delisted under s. NR 605.10. If the volume of liquid flowing through the impoundment or series of impoundments annually is greater than the volume of the impoundment or impoundments, this flow-through constitutes removal of the supernatant for the purpose of this requirement.

3. 'Subsequent management.' Treatment residues may not be placed in any other surface impoundment for subsequent management.

4. 'Recordkeeping.' The procedures and schedule for the sampling of impoundment contents, the analysis of test data and the annual removal of residues which do not meet the treatment standards, or prohibition levels where no treatment standards have been established, or which are from the treatment of wastes prohibited from disposal on land under ss. NR 675.10 to 675.14 where no treatment standards have been established and no prohibition levels apply, shall be specified in the facility's waste analysis plan as required under s. NR 630.13.

(b) The impoundment meets the design requirements of ch. NR 660, regardless that the unit may not be new, expanded, or a replacement, and shall be in compliance with applicable groundwater monitoring requirements of ch. NR 635, and

(c) The owner or operator submits to the department a written certification that the requirements of par. (b) have been met and submits a copy of the waste analysis plan required under par. (a). The following certification is required:

I certify under penalty of law that the requirements of s. NR 675.04(1)(c), have been met for all surface impoundments being used to treat restricted wastes. I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(2) Evaporation of hazardous constituents as the principal means of treatment is not considered to be treatment for the purposes of an exemption under this section.

NR 675.05 GENERAL. (1)(a) Any person who generates, treats, stores or disposes of a hazardous waste may seek an extension to the effective date of any applicable requirement under s. NR 675.10 to 675.15 by

submitting an application to EPA pursuant to 40 CFR 268.5 as of the federal register dated September 6, 1989.

(b) If EPA denies an application for an extension under 40 CFR 268.5 as of the federal register dated September 6, 1989, the department shall recognize that denial.

(c) Persons who have had their applications for an extension approved by EPA under 40 CFR 268.5 as of the federal register dated September 6, 1989, shall continue to manage their wastes in compliance with any applicable restrictions established under ss. NR 675.10 to 675.15 unless and until the department recognizes EPA's approval. A person may petition the department to recognize an EPA approval by submitting the following to the department:

1. Copies of all materials and information submitted to EPA concerning the extension under 40 CFR 268.5 as of the federal register dated September 6, 1989;

2. Copies of all material and information received from EPA, including the EPA notice of approval, concerning the extension under 40 CFR 258.5 as of the federal register dated September 6, 1989; and

3. All other information that the department determines is necessary to evaluate the request for an extension.

(d) When determining whether to recognize an EPA-granted extension under 40 CFR 268.5 as of the federal register dated September 6, 1989, the department shall:

1. Consider all available information including, but not limited to, the information submitted by the applicant to EPA; and

2. Apply the same criteria as applied by EPA under 40 CFR 268.5 as of the federal register dated September 6, 1989.

(e) The department shall recognize an EPA-granted extension unless the department clearly establishes that an extension would threaten human health or the environment.

Note: An example of when an extension may be sought under this subsection is when there is a lack of treatment, recovery or disposal capacity.

(2)(a) Any person who seeks an exemption from a prohibition under ss. NR 675.10 to 675.15 for the disposal of a restricted hazardous waste in a particular unit or units shall submit a petition to the EPA pursuant to 40 CFR 268.6 as of July 1, 1989.

(b) If EPA denies a petition for an exemption under 40 CFR 268.6 as of July 1, 1989, the department shall recognize that denial.

(c) Persons who have had their petitions for an exemption approved by EPA under 40 CFR 268.6 as of July 1, 1989 shall continue to manage their wastes in compliance with any applicable restriction under ss. NR 675.10 to 675.15 unless and until the department recognizes EPA's approval. A person may petition the department to recognize an EPA approval by submitting the following to the department:

1. Copies of all materials and information submitted to EPA concerning the exemption under 40 CFR 268.6 as of July 1, 1989;

2. Copies of all material and information received from EPA including the EPA notice of approval concerning the exemption under 40 CFR 268.6; and

3. All other information that the department determines is necessary to evaluate the request for an exemption.

(d) When determining whether to recognize an EPA-granted exemption under 40 CFR 268.6 as of July 1, 1989, the department shall:

1. Consider all available information including, but not limited to, the information submitted by the applicant to EPA; and

2. Apply the same criteria as applied by EPA under 40 CFR 268.6 as of July 1, 1989.

(e) The department shall recognize the EPA granted exemption unless the department clearly establishes that an exemption would threaten human health or the environment.

(3) The following hazardous wastes are not subject to any provision of this chapter:

(a) Waste generated by very small quantity generators of less than 100 kilograms of non-acute hazardous waste or less than 1 kilogram of acute hazardous waste per month as specified in s. NR 610.07.

(b) Waste pesticides that a farmer disposes of pursuant to the requirements under (2) and (3) or 615.04(2).

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(c) Wastes identified or listed as hazardous after November 8, 1984 for which EPA has not promulgated land disposal restrictions or treatment standards.

NR 675.06 DILUTION PROHIBITION. No person may in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with ss. NR 675.20 to 675.24, to circumvent the effective date of a prohibition in ss. NR 675.10 to 675.14, to otherwise avoid a prohibition in ss. Nr 675.10 to 675.14 or to circumvent a land disposal prohibition imposed by 42 USC 6924.

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

NR 675.07 WASTE ANALYSIS AND RECORDKEEPING. (1) A generator shall test its waste or test an extract developed using the test method described in Appendix I - Toxicity - Characteristic Leaching Procedure (TCLP) of this chapter, or use knowledge of the waste, to determine if the waste is restricted from land disposal under this chapter.

(a) If a generator determines that it is managing a restricted waste under this chapter and the waste exceeds the applicable treatment standards, with each shipment of waste the generator shall notify the treatment or storage facility in writing of the appropriate treatment standards in ss. NR 675.20 to 675.24 and any applicable prohibitions in s. NR 675.12 or 42 USC 6924(d).

1. The notice shall include the following information:

a. EPA hazardous waste number;

b. The corresponding treatment standard and all applicable prohibitions in s. NR 675.12 or 42 USC 6924(d);

c. The manifest number associated with the shipment of waste; and

d. Waste analysis data, where available.

2. The generator shall keep a copy of this notice with the generator's copy of the manifest.

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
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(b) If a generator determines that it is managing a restricted waste under this chapter, and determines that the waste may be disposed on land without further treatment, with each shipment of waste the generator shall submit, to the treatment, storage or land disposal facility, a notice and a certification stating that the waste meets applicable treatment standards in ss. NR 675.20 to 675.24 and the applicable prohibition levels in s. NR 675.12; or 42 USC 6924(d).

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

1. The notice shall include the following information:

a. EPA hazardous waste number;

b. The corresponding treatment standard and all applicable prohibitions in s. NR 675.12;

c. The manifest number associated with the shipment of waste; and

d. Waste analysis data, where available.

2. The certification shall be signed by an authorized representative and shall state the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in ss. NR 675.20 to 675.24 and all applicable prohibitions in s. NR 675.12 or 42 USC 6924(d). I believe that the information I submitted is true, accurate and complete. I am

aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

3. The generator shall keep a copy of this notice and certification with the generator's copy of the manifest.

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(c) If a generator's waste is subject to an exemption from a prohibition against the type of land disposal method utilized for the waste, such as, but not limited to, a case-by-case extension under s. NR 675.05(1) or an exemption under s. NR 675.05(2) or a nationwide capacity variance under 40 CFR 268, Subpart C, as of the federal register dated September 6, 1989, with each shipment of waste the generator shall submit a notice to the facility receiving the waste stating that the waste is not prohibited from land disposal.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

1. The notice shall include the following information:

- a. EPA hazardous waste number;
- b. The corresponding treatment standard and all applicable prohibitions in s. NR 675.12 or 42 USC 6924(d) and information concerning the extension, exemption or variance;
- c. The manifest number associated with the shipment of waste;
- d. Waste analysis data, where available; and
- e. The date the waste is subject to the prohibition.

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
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(d) If a generator determines the waste is restricted based solely on the generator's knowledge of the waste, all supporting data used to make this determination shall be retained on-site in the generator's files. If a generator determines the waste is restricted based on testing this waste or an extract developed using the test method described in Appendix I of this chapter, all waste analysis data shall be retained on-site in the generator's files.

(e) Generators shall retain on-site a copy of all notices, certifications, demonstrations, waste analysis data and other documentation produced pursuant to this section for at least 5 years from the date that the waste that is the subject of the documentation was last sent to on-site or off-site treatment, storage or disposal. Upon written notice from the department to the generator, the period of retention may be extended beyond 5 years.

(2) Treatment facilities shall test their wastes according to the frequency specified in their waste analysis plans as required by s. NR 630.12. Testing shall be performed as provided in pars. (a), (b) and (c).

(a) For wastes with treatment standards expressed as concentrations in the waste extract in s. NR 675.21, the owner or operator of the treatment facility shall test the treatment residues, or an extract of the residues developed using the test method described in Appendix I, to ensure that the treatment residues or extract meet the applicable treatment standards.

(b) For wastes that are prohibited under s. NR 675.12 but not subject to any treatment standards under ss. NR 675.20 to 675.24, the owner or operator of the treatment facility shall test the treatment residues according to the generator testing requirements specified in s. NR 675.12 to assure that the treatment residues comply with the applicable prohibitions.

(c) For wastes with treatment standards expressed as concentrations in the waste under s. NR 675.23, the owner or operator of the treatment facility shall test the treatment residues, not an extract of the residues, to assure that the treatment residues meet the applicable treatment standards.

(d)1. A notice shall be sent with each waste shipment to the land disposal facility which includes the following information:

a. EPA hazardous waste number;

b. The corresponding treatment standard and all applicable prohibitions in s. NR 675.12 or 42 USC 6924(d);

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
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c. The manifest number associated with the shipment of waste; and

d. Waste analysis data, where available.

2. The treatment facility shall keep a copy of this notice with the treatment facility's copy of the manifest.

(e) The treatment facility shall submit a certification with each shipment of waste or treatment residue of a restricted waste to the land disposal facility stating that the waste or treatment residue has been treated in compliance with the treatment standards in ss. NR 675.20 to 675.24 and the applicable prohibitions in s. NR 675.12 or 42 USC 6924(d).

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

1. For wastes with treatment standards expressed as concentrations in the waste extract or in the waste, the certification shall be signed by an authorized representative and shall state the following:

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to achieve the performance levels specified in ss. NR 675.20 to 675.24 and all applicable prohibitions in s. NR 675.12 without dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

2. For wastes with treatment standards expressed as technologies of ss. NR 675.20 to 675.24 the certification shall be signed by an authorized representative and shall state the following:

I certify under penalty of law that the waste has been treated in accordance with the requirements under ss. NR 675.20 to 675.24. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

3. The treatment facility shall keep a copy of this certification with its copy of the manifest.

(f) If the waste or treatment residue will be further managed at a different treatment or storage facility, the treatment, storage or disposal facility sending the waste or treatment residue off-site shall comply with the notice and certification requirements applicable to generators under this section.

(g) The owner or operator of any land disposal facility disposing any waste subject to restrictions under this chapter shall:

1. Have copies of the notice and certifications specified in sub. (1) or (2).

2. Test the waste, or an extract of the waste or treatment residue developed using the test method described in Appendix I of this chapter or using any methods required by generators under s. NR 675.12 to assure that the wastes or treatment residues are in compliance with the applicable treatment standards in ss. NR 675.20 to 675.24 and all applicable prohibitions in s. NR 675.12 or 42 USC 6924(d). Testing shall be performed according to the frequency specified in the facility's waste analysis plan as required by s. NR 630.13.

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

NR 675.08 LANDFILL AND SURFACE IMPOUNDMENT DISPOSAL RESTRICTIONS. [Reserved]

NR 675.09 SCHEDULE FOR LAND DISPOSAL PROHIBITION AND ESTABLISHMENT OF TREATMENT STANDARDS. (1) IDENTIFICATION OF WASTES TO BE EVALUATED BY AUGUST 8, 1988. EPA will take action under 42 USC 6924(g)(5) and 42 USC 6924(m) by August 8, 1988, for the following wastes:

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

Note: For ease of understanding the wastes have been listed by the section of ch. NR 605 under which they were listed.

(a) s. NR 605.09(2)(a) Wastes

- F006 - Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
- F007 - Spent cyanide plating bath solutions from electroplating operations.
- F008 - Plating bath sludges from the bottom of plating baths from electroplating operations where cyanides are used in the process.
- F009 - Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.
- F019 - Wastewater treatment sludges from the chemical conversion coating of aluminum.

(b) s. NR 605.09(2)(b) Wastes

- K001 - Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.
- K004 - Wastewater treatment sludge from the production of zinc yellow pigments.
- K008 - Over residue from the production of chrome oxide green pigments.
- K011 - Bottom stream from the wastewater stripper in the production of acrylonitrile.
- K013 - Bottom stream from the acetonitrile column in the production of acrylonitrile.
- K014 - Bottoms from the acetonitrile purification column in the production of acrylonitrile.
- K015 - Still bottoms from the distillation of benzyl chloride.
- K016 - Heavy ends or distillation residues from the production of carbon tetrachloride.
- K017 - Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.
- K018 - Heavy ends from the fractionation column in ethyl chloride production.
- K020 - Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.

- K021 - Aqueous spent antimony catalyst waste from fluoromethanes production.
- K022 - Distillation bottom tars from the production of phenol/acetone from cumane.
- K024 - Distillation bottoms from the production of phthalic anhydride from naphthalene.
- K030 - Column bottom or heavy ends from the combined production of trichloroethylene and perchloroethylene.
- K031 - By-products salts generated in the production of MSMA and cacodylic acid.
- K035 - Wastewater treatment sludges generated in the production of creosote.
- K036 - Still bottoms from toluene reclamation distillation in the production of disulfoton.
- K037 - Wastewater treatment sludge from the production of disulfoton.
- K044 - Wastewater treatment sludges from the manufacturing and processing of explosives.
- K045 - Spent carbon from the treatment of wastewater containing explosives.
- K046 - Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.
- K047 - Pink/red water from TNT operations.
- K048 - Dissolved air flotation (DAF) float from the petroleum refining industry.
- K049 - Stop oil emulsion solids from the petroleum refining industry.
- K050 - Heat exchange bundle cleaning sludge from the petroleum refining industry.
- K051 - API separator sludge from the petroleum refining industry.
- K052 - Tank bottoms (leaded) from the petroleum refining industry.
- K060 - Ammonia still lime sludge from coking operations.
- K061 - Emission control dust/sludge from the primary production of steel in electric furnaces.
- K062 - Spent pickle liquor from steel finishing operations in chlorine production.
- K069 - Emission control dust/sludge from secondary lead smelting.
- K071 - Brine purification muds from the mercury cells process in chlorine production, where separately prepurified brine is not used.
- K073 - Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes
- K083 - Distillation bottoms from aniline production.
- K084 - Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.

- K085 - Distillation of fractionation column bottoms from the production of chlorobenzenes.
- K086 - Solvent washes and sludges; caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.
- K087 - Decanter tank tar sludge from coking operations.
- K099 - Untreated wastewater from the production of 2,4-D.
- K101 - Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K102 - Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
- K103 - Process residues from aniline extraction from the production of aniline.
- K104 - Combined wastewater streams generated from nitrobenzene/aniline production.
- K106 - Waste water treatment sludge from the mercury cell process in chlorine production.

(c) s. NR 605.09(3)(b) Wastes

- P001 - Warfarin, when present at concentration greater than 0.3%
- P004 - Aldrin
- P005 - Allyl alcohol
- P010 - Arsenic acid
- P011 - Arsenic (V) oxide
- P012 - Arsenic (III) oxide
- P015 - Beryllium dust
- P016 - Bis-(chloromethyl) ether
- P018 - Brucine
- P020 - Dinoseb
- P030 - Soluble cyanide salts not elsewhere specified
- P036 - Dichlorophenylarsine
- P037 - Dieldrin
- P039 - Disulfoton
- P041 - Diethyl-p-nitrophenyl phosphate

P048 - 2,4-Dinitrophenol

P050 - Endosulfan

P058 - Fluoroacetic acid, sodium salt

P059 - Heptachlor

P063 - Hydrogen cyanide

P068 - Methyl Hydrazine

P069 - Methylacetonitrile

P070 - Aldicarb

P071 - Methyl parathion

P081 - Nitroglycerine

P082 - N-Nitrosodimethylamine

P084 - N-Nitrosomethylvinylamine

P087 - Osmium tetroxide

P089 - Parathion

P092 - Phenylmercuric acetate

P094 - Phorate

P097 - Famphur

P102 - Propargyl alcohol

P105 - Sodium azide

P108 - Strychnine and salts

P110 - Tetraethyl lead

P115 - Thallium (I) sulfate

P120 - Vanadium pentoxide

P122 - Zinc phosphide, when present at concentrations greater than 10%

P123 - Toxaphene

(d) s. NR 605.09(3)(c) Wastes

U007 - Acrylamide

U009 - Acrylonitrile
U010 - Mitomycin C
U012 - Aniline
U016 - Benz(c)acridine
U018 - Benz(a)anthracene
U019 - Benzene
U022 - Benzo(a)pyrene
U029 - Methyl bromide
U031 - n-Butanol
U036 - Chlordane, technical
U037 - Chlorobenzene
U041 - n-Chloro-2,3-epoxypropane
U043 - Vinyl chloride
U044 - Chloroform
U046 - Chloromethyl methyl ether
U050 - Chrysene
U051 - Creosote
U053 - Crotonaldehyde
U061 - DDT
U063 - Dibenz o (a, h) anthracene
U064 - 1,2:7,8 Dibenzopyrene
U066 - Dibromo-3-chloropropane 1,2-
U067 - Ethylene dibromide
U074 - 1,4-Dichloro-2-butene
U077 - Ethane, 1,2-dichloro-
U078 - Dichloroethylene, 1,1-
U086 - N,N Diethylhydrazine

U089 - Diethylstilbestrol
U103 - Dimethyl sulfate
U105 - 2,4-Dinitrotoluene
U108 - Dioxane, 1,4-
U115 - Ethylene oxide
U122 - Formaldehyde
U124 - Furan
U129 - Lindane
U130 - Hexachlorocyclopentadiene
U133 - Hydrazine
U134 - Hydrofluoric acid
U137 - Indeno(1,2,3-cd)pyrene
U151 - Mercury
U154 - Methanol
U155 - Methapyrilene
U157 - 3-Methylcholanthrene
U158 - 4,4-Methylene-bis-(2-chloroaniline)
U159 - Methyl ethyl ketone
U171 - Nitropropane, 2-
U177 - N-Nitroso-N-methylurea
U180 - N-Nitrosopyrrolidine
U185 - Pentachloronitrobenzene
U188 - Phenol
U192 - Pronamide
U200 - Reserpine
U209 - Tetrachloroethane, 1,1,2,2-
U210 - Tetrachloroethylene

- U211 - Carbon tetrachloride
- U219 - Thiourea
- U220 - Toluene
- U221 - Toluenediamine
- U223 - Toluene diisocyanate
- U226 - Methylchloroform
- U227 - Trichloroethane, 1,1,2-
- U228 - Trichloroethylene
- U237 - Uracil mustard
- U238 - Ethyl carbamate
- U248 - Warfarin, when present at concentrations of 0.3% or less
- U249 - Zinc phosphide, when present at concentrations of 10% or less

(2) IDENTIFICATION OF WASTES TO BE EVALUATED BY JUNE 8, 1989. By June 8, 1989, EPA will take action under the resource conservation and recovery act to evaluate the hazardous wastes associated with the following waste codes for either appropriate treatment technologies or standard or both. A description of each waste can be found in ch. NR 605.

TABLE 1 - SECOND THIRD WASTES

F010	F011	F012	F024			
K009	K010	K019	K025	K027	K028	K029
K038	K039	K040	K041	K042	K043	K095
K096	K097	K098	K105			
P002	P003	P007	P008	P014	P026	P027
P029	P040	P043	P044	P049	P054	P057
P060	P062	P066	P067	P072	P074	P085
P098	P104	P106	P107	P111	P112	P113
P114						
U002	U003	U005	U008	U011	U014	U015
U020	U021	U023	U025	U026	U028	U032
U035	U047	U049	U057	U058	U059	U060
U062	U070	U073	U080	U083	U092	U093
U094	U095	U097	U098	U099	U101	U106
U107	U109	U110	U111	U114	U116	U119
U127	U128	U131	U135	U138	U140	U142
U143	U144	U146	U147	U149	U150	U161
U162	U163	U164	U165	U168	U169	U170
U172	U173	U174	U176	U178	U179	U189
U193	U196	U203	U205	U206	U208	U213
U214	U215	U216	U217	U218	U235	U239
U244						

(3) IDENTIFICATION OF WASTES TO BE EVALUATED BY MAY 8, 1990. By May 8, 1990, EPA will take action under the resource conservation and recovery act to evaluate the hazardous wastes associated with the following waste codes for either appropriate treatment technologies or standard or both. A description of each waste can be found in ch. NR 605.

TABLE II - FINAL THIRD WASTES

K002	K003	K005	K006	K007	K023	K026
K032	K033	K034	K093	K094	K100	
P006	P009	P013	P017	P021	P022	P023
P024	P028	P031	P033	P034	P038	P042
P045	P046	P047	P051	P056	P064	P065
P073	P075	P076	P077	P078	P088	P093
P095	P096	P099	P101	P103	P109	P116
P118	P119	P121				
U001	U004	U006	U017	U024	U027	U030
U033	U034	U038	U039	U042	U045	U048
U052	U055	U056	U068	U069	U071	U072
U075	U076	U079	U081	U082	U084	U085
U087	U088	U090	U091	U096	U102	U112
U113	U117	U118	U120	U121	U123	U125
U126	U132	U136	U139	U141	U145	U148
U152	U153	U156	U160	U166	U167	U181
U182	U183	U184	U186	U187	U190	U191
U194	U197	U201	U202	U204	U207	U222
U225	U234	U236	U240	U243	U246	U247

(4) EPA EVALUATION BASED UPON CHARACTERISTIC. By May 8, 1990, EPA shall take action under the resource conservation and recovery act to evaluate all wastes identified as hazardous based on a characteristic alone for either appropriate treatment technologies or standard or both.

Note: Examples of wastes identified hazardous based on a characteristic alone include corrosivity, reactivity, ignitability and EP toxicity.

(5) Wastewater residues, with less than 1% total organic carbon and less than 1% total suspended solids, resulting from the following well designed and well operated treatment methods for wastes listed in subs. (1) and (2) for which EPA has not promulgated wastewater treatment standards:

- (a) Metals recovery;
- (b) Metals precipitation;
- (c) Cyanide destruction;
- (d) Carbon adsorption;
- (e) Chemical oxidation steam stripping;
- (f) Biodegradation; and
- (g) Incineration or other direct thermal destruction.

(6) Hazardous wastes listed in subs. (1) and (2) that are mixed radioactive and hazardous wastes.

(7) Multi-source leachate that is derived from disposal of any listed waste, except from hazardous waste D020, F021, F022, F023, F026, F027 or F028.

(8) Nonwastewater forms of wastes listed in s. NR 675.09(1) that were originally disposed before August 17, 1988 and for which EPA has promulgated "no land disposal" as the treatment standard at s. NR 675.23, table CCW, no land disposal subtable. This provision does not apply to waste codes K044, K045, K047, and K061, high zinc subcategory.

(9) Nonwastewater forms of wastes listed in s. NR 675.09(1) for which EPA has promulgated "no land disposal" as the treatment standard at s. NR 675.23, table CCW, no and disposal subtable, that are generated in the course of treating wastewater forms of the wastes. This provision does not apply to waste codes K044, K045, K047 and K061, high zinc subcategory.

(10) Nonwastewater forms of waste codes K015 and K083.

NR 675.10 WASTE SPECIFIC PROHIBITIONS - SOLVENT WASTES. (1) Effective [the effective date of these rules - revisor insert date], the spent solvent wastes specified as hazardous by EPA hazardous waste nos. F001, F002, F003, F004 and F005, are prohibited from land disposal.

(2) Effective [the effective date of these rules - revisor insert date], the F001 to F005 solvent wastes which are contaminated soil and debris resulting from a response action taken under 42 USC 9604 or 42 USC 9606 or a corrective action required under 42 USC 6921 to 6939a and the residues from treating these wastes are prohibited from land disposal.

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(3) The requirements of subs. (1) and (2) do not apply if:

(a) The wastes meet the treatment standards of ss. NR 675.20 to 675.24; or

(b) Persons have been granted an exemption from a prohibition pursuant to a no migration petition for a waste under s. NR 675.05(2) with respect to those wastes and units covered by the petition; or

(c) Persons have been granted an extension to the effective date of a prohibition for a waste due to a nationwide capacity shortage pursuant to s. NR 675.05(3), with respect to those wastes covered by the extension.

NR 675.11 WASTE SPECIFIC PROHIBITIONS - WASTES CONTAINING DIOXIN. (1) Effective [the effective date of these rules - revisor insert date], dioxin containing wastes specified as hazardous by EPA hazardous waste nos. F020, F021, F022, F023, F026, F027 and F028 are prohibited from land disposal.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(2) The requirements of sub. (1) do not apply if:

(a) The wastes meet the standards of ss. NR 675.20 to 675.24; or,

(b) Persons have been granted an exemption from a prohibition pursuant to a no migration petition for a waste under s. NR 675.05(3), with respect to those wastes and units covered by the petition; or

(c) Persons have been granted an extension to the effective date of a prohibition pursuant to s. NR 675.05(1), with respect to those wastes covered by the extension.

NR 675.12 WASTE SPECIFIC PROHIBITIONS - CALIFORNIA LIST. (1) The following hazardous wastes are prohibited from land disposal effective [the effective date of these rules - revisor insert date]:

(a) Liquid hazardous wastes having a pH less than or equal to 2.0;

(b) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm;

(c) Liquid hazardous wastes that are primarily water and contain halogenated organic compounds (HOCs) in total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs.

(d) Liquid hazardous wastes that contain HOCs in total concentration greater than or equal to 1,000 mg/l and are not prohibited under par. (c); and

(e) Nonliquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg/kg.

Note: The term halogenated organic compound is defined in s. NR 600.03(85) and includes compounds listed in Appendix III to this chapter.

(2) The requirements of sub. (1) does not apply if:

(a) Persons have been granted an exemption from a prohibition pursuant to a no migration petition for a waste under s. NR 675.05(2), with respect to those wastes and units covered by the petition, except for liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to 500 ppm which are not eligible for the exemptions; or

(b) Persons have been granted an extension to the effective date of a prohibition for a waste pursuant to s. NR 675.05(1), with respect to those wastes covered by the extension; or

(c) The wastes meet the applicable standards specified in ss. NR 675.20 to 675.24 or, where treatment standards are not specified, the wastes are in compliance with the applicable prohibitions in this chapter, or 42 USC 6924(d).

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(d) An exemption has been granted under s. NR 675.05(3) due to a shortage of treatment capacity.

(3) The prohibitions and effective dates specified in sub. (1) does not apply where the waste is subject to a prohibition and effective date for a specified HOC.

Note: An example of a specified HOC would be a hazardous waste chlorinated solvent.

(4) To determine whether or not a waste is a liquid under this section, the following test shall be used: Method 9095, Paint Filter Liquids Test, as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846.

Note: The publication containing this test may be obtained from:

National Technical Information Service
U.S. Department of Commerce
Springfield, Virginia 22161

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(5) Except as otherwise provided in this subsection, the waste analysis and recordkeeping requirements of s. NR 675.07 are applicable to wastes prohibited under this chapter or 42 USC 6924(d).

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(a) The initial generator of a liquid hazardous waste shall test its waste, not an extract or filtrate, in accordance with the procedures specified in s. NR 605.08, or use knowledge of the waste, to determine if the waste has a pH less than or equal to 2.0.

Note: If the liquid waste has a pH less than or equal to 2.0, it is restricted from land disposal and all requirements of this chapter are applicable, except as otherwise specified in this section.

(b) The initial generator of either a liquid hazardous waste containing polychlorinated biphenyls (PCBs) or a liquid or nonliquid hazardous waste containing halogenated organic compounds (HOCs) shall test its waste, not an extract or filtrate, or use knowledge of the waste, to determine whether the concentration levels in the waste equal or exceed the prohibition levels specified in this section.

Note: If the concentration of PCBs or HOCs in the waste is greater than or equal to the prohibition levels specified in this section, the waste is restricted from land disposal and all requirements of this chapter are applicable, except as otherwise specified in this section.

NR 675.13 WASTE SPECIFIC PROHIBITIONS - FIRST THIRD WASTES. (1) The wastes specified as hazardous by EPA hazardous waste nos. F006 (nonwastewater), K001, K004 wastes specified in s. NR 675.23(1), K008 wastes specified in s. NR 675.23(1), K016, K018, K019, K020, K021 wastes specified in s. NR 675.23(1), K022 (nonwastewater), K024, K025 nonwastewaters specified in s. NR 675.23(1), K030, K036 (nonwastewater), K037, K044, K045, nonexplosive K046 (nonwastewater), K047, K060 (nonwastewater), K061 (nonwastewaters containing less than 15% zinc), K062, non CaSO₄, K069 (nonwastewaters), K086 (solvent washes), K087, K099, K100 nonwastewaters specified in s. NR 675.23(1), K101 (wastewater), K101 (nonwastewater, low arsenic subcategory - less than 1% total arsenic), K102 (wastewater), K102 (nonwastewater, low arsenic subcategory - less than 1% total arsenic), K103 and K104 are prohibited from land disposal.

(2) Effective [the effective date of this rule - revisor insert date], wastes specified as hazardous by EPA hazardous waste nos. K048, K049, K050, K051, K052, K061 (containing 15% zinc or greater) and K071 are prohibited from land disposal.

(3) Effective [the effective date of this rule - revisor insert date], the wastes specified in s. NR 675.09(1) having a treatment standard in ss. NR 675.20 to 675.24 based on incineration and which are contaminated soil and debris are prohibited from land disposal.

(4) The requirements of subs. (1) to (3) do not apply if:

(a) The wastes meet the applicable standards specified in ss. NR 675.20 to 675.24; or

(b) Persons have been granted an exemption from a prohibition pursuant to a no migration petition for a waste under s. NR 675.05(2), with respect to those wastes and units covered by the petition; or

(c) Persons have been granted an extension to the effective date of a prohibition for a waste pursuant to s. NR 675.05(1), with respect to those wastes covered by the extension.

(d) An exemption has been granted due to a shortage of treatment capacity by s. NR 675.05(3).

(5) To determine whether a hazardous waste listed in s. NR 675.09(1) exceeds the applicable treatment standards specified in ss. NR 675.20 to 675.24, the initial generator shall test a representative sample of the waste extract or the entire waste depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable ss. NR 675.20 to 675.24 levels, the waste is prohibited from land disposal and all requirements of this chapter are applicable, except as otherwise specified.

NR 675.14 WASTE SPECIFIC PROHIBITIONS - SECOND THIRD WASTES. (1) Effective [the effective date of this rule - revisor insert date], the following wastes specified in s. NR 605.09(2) as EPA hazardous waste nos. F010; F024; the wastes specified in s. NR 605.09(2)(b) as EPA hazardous waste nos. K005, K007, K009 (nonwastewaters), K010, K023, K027, K028, K029 (nonwastewaters), K036 (wastewaters), K038, K039, K040, K043, K093, K094, K095 (nonwastewaters), K096 (nonwastewaters), K113, K114, K115, K116 and the wastes specified in s. NR 605.09(3)(b) as EPA hazardous wastes nos. P013, P021, P029, P030, P039, P040, P041, P043, P044, P062, P063, P071, P074, P085, P089, P094, P097, P098, P099, P104, P106, P109, P111, P121, U028, U058, U069, U087, U088, U102, U107, U221, U223 and U235 are prohibited from land disposal.

(2) Effective [the effective date of this rule - revisor insert date], the wastes specified in s. NR 605.09(2)(b) as EPA hazardous waste nos. K009 (wastewaters), K011 (nonwastewaters), K013 (nonwastewaters) and K014 (nonwastewaters) are prohibited from land disposal.

(3) Effective [the effective date of this rule - revisor insert date], the wastes specified in s. NR 605.09(2) as EPA hazardous wastes nos. F006 -- cyanide (nonwastewater), F008, F009, F011 (wastewaters) and F012 (wastewaters) are prohibited from land disposal.

(4) Effective [the effective date of this rule - revisor insert date], the waste specified in s. NR 605.09(2) as EPA hazardous waste no. F007 is prohibited from land disposal.

(5) Effective [the effective date of this rule - revisor insert date], F011 (nonwastewaters) and F012 (nonwastewaters) are prohibited from land disposal pursuant to the treatment standards specified in ss. NR 675.21 and 675.23 applicable to F011 (nonwastewaters) and F012 (nonwastewaters).

(6) Effective June 8, 1991, the wastes specified in this section have a treatment standard in ss. NR 675.20 to 675.24 based on incineration, and which are contaminated soil and debris are prohibited from land disposal.

(7) Between [the effective date of this rule - revisor insert date], and June 8, 1991, wastes included in subs. (3) to (6) except for F007, F008, F009, F011 and F012 may be disposed in a landfill or surface impoundment, regardless whether the unit is a new, replacement or lateral expansion unit, only if the unit is in compliance with the technical requirements specified in 40 CFR 268.5(h)(2) as of the federal register dated September 6, 1989.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(8) The requirements of subs.(1) to (6) do not apply if:

(a) The wastes meet the applicable standards specified in ss. NR 675.20 to 675.24, or

(b) Persons have been granted an exemption from a prohibition pursuant to a petition under s. NR 675.05(2) regarding those wastes and units covered by the petition.

(9) The requirements of subs.(1) to (5) do not apply if persons have been granted an extension to the effective date of a prohibition pursuant to the requirements under 40 CFR 268.5 as of July 1, 1989, with respect to those wastes covered by the extension.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(10) To determine whether a hazardous waste listed in s. NR 675.09 exceeds the applicable treatment standards specified in ss. NR 675.21 and 675.23, the initial generator shall test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the

waste contains constituents in excess of the applicable ss. NR 675.20 to 675.24 levels, the waste is prohibited from land disposal and all requirements of this chapter are applicable, except as otherwise specified.

NR 675.15 WASTE SPECIFIC PROHIBITIONS - FINAL THIRD WASTES. (reserved)

NR 675.20 APPLICABILITY OF TREATMENT STANDARDS. (1) A restricted waste identified in s. NR 675.21 may be disposed on land only if an extract of the waste or of the treatment residual of the waste developed using the test method of Appendix I of this chapter does not exceed the value shown in Table CCWE of s. NR 675.21 for any hazardous constituent listed in Table CCWE for that waste.

(2) A restricted waste for which a treatment technology is specified under s. NR 675.22(1) may be disposed on land after it is treated using that specified technology or an equivalent treatment method approved under s. NR 675.22(2).

(3) A restricted waste identified in s. NR 675.23 may be disposed on land only if the constituent concentrations in the waste or treatment residue of the waste do not exceed the value shown in Table CCW of s. NR 675.23 for any hazardous constituent listed in Table CCW for that waste.

NR 675.21 TREATMENT STANDARDS EXPRESSED AS CONCENTRATIONS IN WASTE EXTRACT. (1) Table CCWE identifies the restricted wastes and the concentrations of their associated hazardous constituents which may not be exceeded by the extract of a waste or waste treatment residual developed using the test method in Appendix I of this chapter for the allowable land disposal of the waste.

Note: Appendix II of this chapter provides guidance on treatment methods that have been shown to achieve the Table CCWE levels for the respective wastes. Appendix II is not a regulatory requirement but is provided to assist generators, owners and operators in their selection of appropriate treatment methods.

TABLE CCWE-CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT

F001-F005 Spent Solvents	Concentration (in mg/l)	
	Wastewaters containing spent solvents	All Other spent solvent wastes
Acetone	0.05	0.59
n-Butyl alcohol	5.0	5.0
Carbon disulfide	1.05	4.81
Carbon tetrachloride	.05	.96
Chlorobenzene	.15	.05
Cresols (and cresylic acid)	2.82	.75
Cyclohexanone	.125	.75
1,2-Dichlorobenzene	.65	.125
Ethyl acetate	.05	.75
Ethylbenzene	.05	.053
Ethyl ether	.05	.75
Isobutanol	5.0	5.0

Methanol	.25	.75
Methylene chloride	.20	.96
Methyl ethyl ketone	0.05	0.75
Methyl isobutyl ketone	0.05	0.33
Nitrobenzene	0.66	0.125
Pyridine	1.12	0.33
Tetrachloroethylene	0.079	0.05
Toluene	1.12	0.33
1,1,1-Trichloroethane	1.05	0.41
1,1,2-Trichloro-1,2,2-	1.05	0.96
Trifluoroethane		
Trichloroethylene	0.062	0.091
Trichlorofluoromethane	0.05	0.96
Xylene	0.05	0.15

F006 nonwastewaters (see also Table CCW in s. NR 675.23)

Concentration (in mg/l)

Cadmium	0.066
Chromium	5.2
Lead	.51
Nickel	.32
Silver	.072

F007, F008 and F009 nonwastewaters
(see also table CCW in s. NR 675.23)

Concentration (in mg/l)

cadmium	0.066
Chromium (total)	5.2
Lead	0.51
Nickel	0.32
Silver	0.072

F011 and F012 nonwastewaters
(see also table CCW in s. NR 675.23)

Concentrations (in mg/l)

Cadmium	0.066
Chromium (total)	5.2
Lead	0.51
Nickel	0.32
Silver	0.072

F020-F023 and F026-F028 Dioxin Containing Wastes

Concentration

HxCDD-All Hexachlorodibenzo-p-dioxins	< 1 ppb
HxCDF-All Hexachlorodibenzofurans	< 1 ppb

PeCDD-All Pentachlorodibenzo-p-dioxins	< 1 ppb
PeCDF-All Pentachlorodibenzofurans	< 1 ppb
TCDD-All Tetrachlorodibenzo-p-dioxins	< 1 ppb
TCDF-All Tetrachlorodibenzofurans	< 1 ppb
2,4,5-Trichlorophenol	< 0.05 ppm
2,4,6-Trichlorophenol	< 0.05 ppm
2,3,4,6-Tetrachlorophenol	< 0.10 ppm
Pentachlorophenol	< 0.01 ppm

F024 nonwastewaters
(see also table CCW in s. NR 675.23)

Concentrations (in mg/l)

Chromium (total)
Nickel

Reserved
Reserved

K001 nonwastewaters
(see also Table CCW in s. NR 675.23)

Concentration (in mg/l)

Lead

0.51

K022 nonwastewaters
(see also Table CCW in s. NR 675.23)

Concentrations (in mg/l)

Chromium (Total)
Nickel

5.2
0.32

K028 nonwastewaters
(see also table CCW in s.NR 675.23)

Concentrations (in mg/l)

Chromium (total)
Nickel

Reserved
Reserved

K046 nonwastewaters (Nonreactive Subcategory)

Concentration (in mg/l)

Lead

0.18

K048, K049, K050, K051 and K052 nonwastewaters
(see also table CCW in s. NR 675.23)

Concentration (in mg/l)

Arsenic
Chromium (Total)

0.004
1.7

Nickel	0.048
Selenium	0.025

K061 nonwastewaters (Low Zinc Subcategory
less than 15% total zinc)

Concentration (in mg/l)

Cadmium	0.14
Chromium (Total)	5.2
Lead	0.24
Nickel	0.32

K062 nonwastewaters

Concentration (in mg/l)

Chromium (Total)	0.094
Lead	0.37

K071 nonwastewaters

Concentration (in mg/l)

Mercury	0.025
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K086 nonwastewaters (Solvent Washes Subcategory)
(See also Table CCW in s. NR 675.23)

Concentration (in mg/l)

Chromium (Total)	0.094
Lead	0.37

K087 nonwastewaters

Concentration (in mg/l)

(see also Table CCW in s. NR 675.23)

Lead	0.51
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K101 and K102 nonwastewaters (Low Arsenic - Subcategory - less than 1% Total Arsenic)Concentration (in
mg/l)

(See also Table CCW in s. NR 675.23)

Cadmium	0.066
Chromium (Total)	5.2
Lead	0.51
Nickel	0.32

K115 nonwastewaters (see also table Concentrations (in mg/l)
CCW in s.NR 675.23)

Nickel	0.32
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P074 nonwastewaters (see also table CCW in s. NR 675.23)	Concentrations (in mg/l)
Nickel	0.32
P099 nonwastewaters (see also table CCW in s. NR 675.23)	Concentrations (in mg/l)
Silver	0.072
P104 nonwastewaters (see also table CCW in s. NR 675.23)	Concentrations (in mg/l)
Silver	0.072

(2) When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue shall meet the lowest treatment standard for the constituent of concern.

NR 675.22 TREATMENT STANDARDS EXPRESSED AS SPECIFIED TECHNOLOGIES. (1) The following wastes shall be treated using the identified technology or technologies, unless an equivalent method is approved by EPA.

(a) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm shall be incinerated in accordance with the technical requirements of s. NR 157.07. Thermal treatment under this section shall also be in compliance with applicable regulations in chs. NR 625 and 665.

(b) Nonliquid hazardous wastes containing halogenated organic compounds (HOCs) in total concentration greater than or equal to 1,000 mg/kg and liquid HOC-containing wastes that are prohibited under s. NR 675.12(1)(d) shall be incinerated in accordance with the requirements of ch. NR 665, or burned in boilers or industrial furnaces burning in accordance with applicable regulatory standards. These treatment standards do not apply where the waste is subject to a ch. NR 675 treatment standard for a specific HOC, such as a hazardous waste chlorinated solvent for which a treatment standard is established under s. NR 675.21(1).

(c) The nonwastewater form of the following hazardous wastes listed in s. NR 675.09 shall be incinerated in accordance with the requirements of ch. NR 665, or burned in boilers or industrial furnaces burning in accordance with applicable regulatory standards: K027, K039, K113, K114, K115, K116, P040, P041, P043, P044, P062, P085, P109, P111, U058, U087, U221 and U223.

(d) The wastewater form of the following hazardous wastes listed in s. NR 675.09 shall be treated by carbon adsorption, incineration or pretreatment followed by carbon adsorption: K027, K039, K113, K114, K115, K116, P040, P041, P043, P044, P062, P085, P109, P111, U058, U087, U221 and U223.

(2)(a) Any person may submit an application to EPA demonstrating that an alternative treatment method can achieve a level of performance equivalent to that achieved by methods specified in sub. (1).

The applicant shall submit information demonstrating that the treatment method will not present an unreasonable risk to human health or the environment and is in compliance with federal, state and local requirements. On the basis of the information and any other available information, EPA may approve the use of the alternative treatment method if it finds that the alternative treatment method provides a level of performance equivalent to that achieved by methods specified in sub. (1). Any approval shall be stated in writing and may contain the provisions and conditions as EPA deems appropriate. The person to whom the certification is issued shall comply with all limitations contained in the determination.

(b) If EPA denies an application for an alternative treatment method under par. (a), the department shall recognize that denial.

(c) Persons who have had their applications for an alternative treatment method approved by EPA under par.(a) shall continue to use the treatment method specified in sub.(1) unless and until the department recognizes EPA's approval of an alternative treatment method. A person may petition the department to recognize an EPA alternative treatment method by submitting the following to the department:

1. Copies of all materials and information submitted to EPA concerning the alternative treatment method;
2. Copies of all materials and information received from EPA, including the EPA notice of approval, concerning the alternative treatment method;
3. All other information that the department determines is necessary to evaluate the request for an alternative treatment method.

(d) When determining whether to recognize an EPA-approved alternative treatment method, the department shall:

1. Consider all available information including but not limited to the information submitted by the applicant to EPA; and
2. Apply the same criteria as applied by EPA under par.(a).

(e) The department shall recognize the EPA-approved alternative treatment method unless the department clearly establishes that the alternative treatment method would threaten human health or the environment.

(3) Approval by EPA and the department of an alternative treatment method under sub. (2) shall allow a facility to dispose on land prohibited waste under this chapter.

NR 675.23 TREATMENT STANDARDS EXPRESSED IN WASTE CONCENTRATIONS. (1) Table CCW identifies the restricted wastes and the concentrations of their associated hazardous constituents which may not be exceeded by the waste or treatment residual, not an extract of the waste or residual, for the allowable land disposal of the waste or residual. The wastewater and nonwastewater treatment standards in Table CCW are based on analysis of grab samples except the wastewater treatment standards that are based on analysis of composite samples for wastes, K009, K010, K036, K038, K040, P039, P071, P089, P094, P097 and U235.

TABLE CCW-CONSTITUENT CONCENTRATIONS IN WASTES

F001, F002, F003, F004 and F005 wastewaters
(Pharmaceutical Industry)

Concentration (in mg/l)

Methylene chloride

0.44

F006 nonwastewaters (see also table
CCWE in s. NR 675.21)

Concentrations (in mg/kg)

Cyanides (total)

590

Cyanides (amenable)

30

F007, F008 and F009 nonwastewaters
(see also table CCWE in s. NR 675.21)

Concentrations (in mg/kg)

Cyanides (total)

590

Cyanides (amenable)

30

F007, F008 and F009 wastewaters
(see also table CCWE in s. NR 675.21)

Concentrations (in mg/l)

Cyanides (total)

1.9

Cyanides (amenable)

0.10

Chromium (total)

0.32

Lead

0.04

Nickel

0.44

F010 nonwastewaters

Concentrations (in mg/kg)

Cyanides (total)

1.5

F010 wastewaters

Concentrations (in mg/l)

Cyanides (total)

1.9

Cyanides (amenable)

0.10

F011 and F012 nonwastewaters

Concentrations (in mg/kg)

Cyanides (total)

110

Cyanides (amenable)

9.1

F011 and F012 wastewaters (see also Table CCWE in s. NR 675.21).

Concentrations (in mg/l)

Cyanides (total)	1.9
Cyanides (amenable)	0.10
Chromium (total)	0.32
Lead	0.04
Nickel	0.44

F024 nonwastewaters (see also table CCWE in s. NR 675.21)

Concentrations (in mg/kg)

2-Chloro-1,3-butadiene	0.28
3-Chloropropene	0.28
1,1-Dichloroethane	0.014
1,2-Dichloroethane	0.014
1,2-Dichloropropane	0.014
cis-1,3-Dichloropropene	0.014
trans-1,3-Dichloropropene	0.014
Bis(2-ethylhexyl)phthalate	1.8
Hexachloroethane	1.8
Hexachlorodibenzo-furans	0.001
Hexachlorodibenzo-p-dioxins	0.001
Pentachlorodibenzo-furans	0.001
Pentachlorodibenzo-p-dioxins	0.001
Tetrachlorodibenzo-furans	0.001

F024 wastewaters (see also table CCWE in s. NR 675.21)

Concentrations (in mg/l)

2-Chloro-1,3-butadiene	0.28
3-Chloropropene	0.28
1,1-Dichloroethane	0.014
1,2-Dichloroethane	0.014
1,2-Dichloropropane	0.014
cis-1,3-Dichloropropene	0.014
trans-1,3-Dichloropropene	0.014
Bis(2-ethylhexyl) phthalate	0.036
Hexachloroethane	0.036
Hexachlorodibenzo-furans	0.001
Hexachlorodibenzo-p-dioxins	0.001
Pentachlorodibenzo-furans	0.001
Pentachlorodibenzo-p-dioxins	0.001
Tetrachlorodibenzo-furans	0.001
Chromium (total)	0.35
Nickel	0.47

K001 nonwastewaters (see also

Concentration (in mg/kg)

Table CCWE in s. NR 675.21)

Naphthalene	8.0
Pentachlorophenol	37.0
Phenanthrene	8.0
Pyrene	7.3
Toluene	0.14
Xylenes	0.16

K001 wastewaters Concentration (in mg/l)

Naphthalene	0.15
Pentachlorophenol	0.88
Phenanthrene	0.15
Pyrene	0.14
Toluene	0.14
Xylenes	0.16
Lead	0.037

K009 and K010 nonwastewaters Concentration (in mg/kg)

Chloroform	6.0
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K009 and K010 wastewaters Concentration (in mg/l)

Chloroform	0.10
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K011, K013, and K014 nonwastewaters Concentration (in mg/kg)

Acetonitrile	1.8
Acrylonitrile	1.4
Acrylamide	23.0
Benzene	0.03
Cyanides (Total)	57.0

K015 wastewaters Concentration (in mg/l)

Anthracene	1.0
Benzal chloride	0.28
Benzo (b and/or k) fluoranthene	0.29
Phenanthrene	0.27
Toluene	0.15
Chromium (Total)	0.32

Nickel 0.44

K016 nonwastewaters Concentration (in mg/kg)

Hexachlorobenzene	28.0
Hexachlorobutadiene	5.6
Hexachlorocyclopentadiene	5.6
Hexachloroethane	28.0
Tetrachloroethene	6.0

K016 wastewaters Concentration (in mg/l)

Hexachlorobenzene	0.033
Hexachlorobutadiene	0.007
Hexachlorocyclopentadiene	0.007
Hexachloroethane	0.033
Tetrachloroethene	0.007

K018 nonwastewaters Concentration (in mg/kg)

Chloroethane	6.0
1,1-Dichloroethane	6.0
1,2-Dichloroethane	6.0
Hexachlorobenzene	28.0
Hexachlorobutadiene	5.6
Hexachloroethane	28.0
Pentachloroethane	5.6
1,1,1-Trichloroethane	6.0

K018 wastewaters Concentration (in mg/l)

Chloroethane	0.007
Chloromethane	0.007
1,1-Dichloroethane	0.007
1,2-Dichloroethane	0.007
Hexachlorobenzene	0.033
Hexachlorobutadiene	0.007
Pentachloroethane	0.007
1,1,1-Trichloroethane	0.007

K019 nonwastewaters Concentration (in mg/kg)

Bis(2-chloroethyl)ether	5.6
Chlorobenzene	6.0

Chloroform	6.0
1,2-Dichloroethane	6.0
Hexachloroethane	28.0
Naphthalene	5.6
Phenanthrene	5.6
Tetrachloroethene	6.0
1,2,4-Trichlorobenzene	19.0
1,1,1-Trichloroethane	6.0

K019 wastewaters **Concentration (in mg/l)**

Bis(2-chloroethyl)ether	0.007
Chlorobenzene	0.006
Chloroform	0.007
p-Dichlorobenzene	0.008
1,2-Dichloroethane	0.007
Fluorene	0.007
Hexachloroethane	0.033
Naphthalene	0.007
Phenanthrene	0.007
1,2,4,5-Tetrachlorobenzene	0.017
Tetrachloroethene	0.007
1,2,4-Trichlorobenzene	0.023
1,1,1-Trichloroethane	0.007

K020 nonwastewaters **Concentration (in mg/kg)**

1,2-Dichloroethane	6.0
1,1,2,2-Tetrachloroethane	5.6
Tetrachloroethene	6.0

K020 wastewaters **Concentration (in mg/l)**

1,2-Dichloroethane	0.007
1,1,2,2-Tetrachloroethane	0.007
Tetrachloroethene	0.007

K022 nonwastewaters (see also Table CCWE in s. NR 675.21) **Concentration (in mg/kg)**

Acetophenone	19.0
Sum of Diphenylamine and Diphenylnitrosamine	13.0
Phenol	12.0
Toluene	0.034

K023, K093, and K094 nonwastewaters **Concentration (in mg/kg)**

Phthalic anhydride (measured as Phthalic acid) 28.0

K023, K093, and K094 wastewaters Concentration (in mg/l)

Phthalic anhydride (measured as Phthalic acid) 0.54

K024 nonwastewaters Concentration (in mg/kg)

Phthalic anhydride (measured as Phthalic acid) 28.0

K024 wastewaters Concentration (in mg/l)

Phthalic anhydride (measured as Phthalic acid) 0.54

K028 nonwastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/kg)

1,1-Dichloroethane 6.0

trans-1,2-Dichloroethane 6.0

Hexachlorobutadiene 5.6

Hexachloroethane 28.0

Pentachloroethane 5.6

1,1,1,2-Tetrachloroethane 5.6

1,1,2,2-Tetrachloroethane 5.6

1,1,1-Trichloroethane 6.0

1,1,2-Trichloroethane 6.0

Tetrachloroethylene 6.0

K028 wastewaters Concentration (in mg/l)

1,1-Dichloroethane 0.007

trans-1,2-Dichloroethane 0.033

Hexachlorobutadiene 0.007

Hexachloroethane 0.033

Pentachloroethane 0.033

1,1,1,2-Tetrachloroethane 0.007

1,1,2,2-Tetrachloroethane 0.007

Tetrachloroethylene 0.007

1,1,1-Trichloroethane 0.007

1,1,2-Trichloroethane 0.007

Cadmium 6.4

Chromium (Total) 0.35

Lead 0.037

Nickel 0.47

K029 nonwastewaters Concentration (in mg/kg)

Chloroform	6.0
1,2-Dichloroethane	6.0
1,1-Dichloroethylene	6.0
1,1,1-Trichloroethane	6.0
Vinyl chloride	6.0

K030 nonwastewaters Concentration (in mg/kg)

Hexachlorobutadiene	5.6
Hexachloroethane	28.0
Hexachloropropene	19.0
Pentachlorobenzene	28.0
Pentachloroethane	5.6
1,2,4,5-Tetrachlorobenzene	14.0
Tetrachloroethene	6.0
1,2,4-Trichlorobenzene	19.0

K030 wastewaters Concentration (in mg/l)

o-Dichlorobenzene	0.008
p-Dichlorobenzene	0.008
Hexachlorobutadiene	0.007
Hexachloroethane	0.033
Pentachloroethane	0.007
1,2,4,5-Tetrachlorobenzene	0.017
Tetrachloroethene	0.007
1,2,4-Trichlorobenzene	0.023

K036 wastewaters Concentration (in mg/l)

Disulfoton 0.025

K037 nonwastewaters Concentration (in mg/kg)

Disulfoton	0.1
Toluene	28.0

K037 wastewaters Concentration (in mg/l)

Disulfoton	0.003
Toluene	0.028

K038 and K040 nonwastewaters Concentration (in mg/kg)

Phorate	0.1
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K038 and K040 wastewaters Concentration (in mg/l)

Phorate	0.025
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K043 nonwastewaters Concentration (in mg/kg)

2,4-Dichlorophenol	0.38
2,6-Dichlorophenol	0.34
2,4,5-Trichlorophenol	8.2
2,4,6-Trichlorophenol	7.6
Tetrachlorophenols (Total)	0.68
Pentachlorophenol	1.9
Tetrachloroethene	1.7
Hexachlorodibenzo-p-dioxins	0.001
Hexachlorodibenzo-furans	0.001
Pentachlorodibenzo-p-dioxins	0.001
Pentachlorodibenzo-furans	0.001
Tetrachlorodibenzo-p-dioxins	0.001
Tetrachlorodibenzo-furans	0.001

K043 wastewaters Concentration (in mg/l)

2,4-Dichlorophenol	0.049
2,6-Dichlorophenol	0.013
2,4,5-Trichlorophenol	0.016
2,4,6-Trichlorophenol	0.039
Tetrachlorophenols (Total)	0.018
Pentachlorophenol	0.22
Tetrachloroethene	0.006
Hexachlorodibenzo-p-dioxins	0.001
Hexachlorodibenzo-furans	0.001
Pentachlorodibenzo-p-dioxins	0.001
Pentachlorodibenzo-furans	0.001
Tetrachlorodibenzo-p-dioxins	0.001
Tetrachlorodibenzo-furans	0.001

K048 nonwastewaters (see also Table CCWE
in s. NR 675.21)

Concentration (in mg/kg)

Benzene	9.5
Benzo(a)pyrene	0.84
Bis(2-ethylhexyl)phthalate	37.0
Chrysene	2.2
Di-n-butyl phthalate	4.2
Ethylbenzene	67.0
Naphthalene	[Reserved]
Phenanthrene	7.7
Phenol	2.7
Pyrene	2.0
Toluene	9.5
Xylenes	[Reserved]
Cyanides (Total)	1.8

K048 wastewaters

Concentration (in mg/l)

Benzene	0.011
Benzo(a)pyrene	0.047
Bis(2-ethylhexyl)phthalate	0.043
Chrysene	0.043
Di-n-butyl phthalate	0.060
Ethylbenzene	0.011
Fluorene	0.050
Naphthalene	0.033
Phenanthrene	0.039
Phenol	0.047
Pyrene	0.045
Toluene	0.011
Xylenes	0.011
Chromium (Total)	0.20
Lead	0.37

K049 nonwastewaters (see also Table CCWE
in s. NR 675.21)

Concentration (in mg/kg)

Anthracene	6.2
Benzene	9.5
Benzo(a)pyrene	0.84
Bis(2-ethylhexyl)phthalate	37.0
Chrysene	2.2
Ethylbenzene	67.0
Naphthalene	[Reserved]
Phenanthrene	7.7
Phenol	2.7
Pyrene	2.0
Toluene	9.5
Xylenes	[Reserved]

Cyanides (Total) 1.8

K049 wastewaters Concentration (in mg/l)

Anthracene	0.039
Benzene	0.011
Benzo(a)pyrene	0.047
Bis(2-ethylhexyl)phthalate	0.043
Carbon disulfide	0.011
Chrysene	0.043
2,4-Dimethylphenol	0.033
Ethylbenzene	0.011
Naphthalene	0.033
Phenanthrene	0.039
Phenol	0.047
Pyrene	0.045
Toluene	0.011
Xylenes	0.011
Chromium (Total)	0.20
Lead	0.037

K050 nonwastewaters (see also Table CCWE in s. NR 675.21) Concentration (in mg/kg)

Benzo(a)pyrene	0.84
Phenol	2.7
Cyanides (Total)	1.8

K050 wastewaters Concentration (in mg/l)

Benzo(a)pyrene	0.047
Phenol	0.047
Chromium (Total)	0.20
Lead	0.037

K051 nonwastewaters (see also Table CCWE in s. NR 675.21) Concentration (in mg/kg)

Anthracene	6.2
Benzene	9.5
Benzo(a)anthracene	1.4
Benzo(a)pyrene	0.84
Bis(2-ethylhexyl)phthalate	37.0
Chrysene	2.2
Di-n-butyl phthalate	4.2
Ethylbenzene	67.0

Naphthalene	[Reserved]
Phenanthrene	7.7
Phenol	2.7
Pyrene	2.0
Toluene	9.5
Xylenes	[Reserved]
Cyanides (Total)	1.8

K051 wastewaters Concentration (in mg/l)

Acenaphthene	0.050
Anthracene	0.039
Benzene	0.011
Benzo(a)anthracene	0.043
Benzo(a)pyrene	0.047
Bis(2-ethylhexyl) phthalate	0.043
Chrysene	0.043
Di-n-butyl phthalate	0.060
Ethylbenzene	0.011
Fluorene	0.050
Naphthalene	0.033
Phenanthrene	0.039
Phenol	0.047
Pyrene	0.045
Toluene	0.011
Xylenes	0.011
Chromium (Total)	0.20
Lead	0.037

K052 nonwastewaters (see also Table CCWE in s. NR 675.21) Concentration (in mg/kg)

Benzene	9.5
Benzo(a)pyrene	0.84
o-Cresol	2.2
p-Cresol	0.90
Ethylbenzene	67.0
Naphthalene	[Reserved]
Phenanthrene	7.7
Phenol	2.7
Toluene	9.5
Xylenes	[Reserved]
Cyanides (Total)	1.8

K052 wastewaters Concentration (in mg/l)

Benzene	0.011
Benzo(a)pyrene	0.047

o-Cresol	0.011
p-Cresol	0.011
2,4-Dimethylphenol	0.033
Ethylbenzene	0.011
Naphthalene	0.033
Phenanthrene	0.039
Phenol	0.047
Toluene	0.011
Xylenes	0.011
Chromium (Total)	0.20
Lead	0.037

K062 wastewaters Concentration (in mg/1)

Chromium (Total)	0.32
Lead	0.04
Nickel	0.44

K071 wastewaters Concentration (in mg/1)

Mercury	0.030
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K086 nonwastewaters-Solvent Washes Subcategory (see also Table CCWE in s. NR 675.21) Concentration (in mg/kg)

Acetone	0.37
bis(2-ethylhexyl) phthalate	0.49
n-Butyl alcohol	0.37
Cyclohexanone	0.49
1,2-Dichlorobenzene	0.49
Ethyl acetate	0.37
Ethyl benzene	0.031
Methanol	0.37
Methylene chloride	0.037
Methyl ethyl ketone	0.37
Methyl isobutyl ketone	0.37
Naphthalene	0.49
Nitrobenzene	0.49
Toluene	0.031
1,1,1,-Trichloroethane	0.044
Trichloroethylene	0.031
Xylenes	0.015

K086 wastewaters-Solvent Washes Subcategory Concentration (in mg/1)

Acetone	0.015
bis(2-ethylhexyl)phthalate	0.044
n-Butyl alcohol	0.031
Cyclohexanone	0.022
1,2-Dichlorobenzene	0.044
Ethyl acetate	0.031
Ethyl benzene	0.015
Methanol	0.031
Methylene chloride	0.031
Methyl ethyl ketone	0.031
Methyl isobutyl ketone	0.031
Naphthalene	0.044
Nitrobenzene	0.044
Toluene	0.029
1,1,1,-Trichloroethane	0.031
Trichloroethylene	0.029
Xylenes	0.015
Chromium (Total)	0.32
Lead	0.037

K087 nonwastewaters (see also Table CCWE
in s. NR 675.21)

Concentration (in mg/kg)

Acenaphthalene	3.4
Benzene	0.071
Chrysene	3.4
Fluoranthene	3.4
Indeno (1,2,3-cd) pyrene	3.4
Naphthalene	3.4
Phenanthrene	3.4
Toluene	0.65
Xylenes	0.070

K087 wastewaters

Concentration (in mg/l)

Acenaphthalene	0.028
Benzene	0.014
Chrysene	0.028
Fluoranthene	0.028
Indeno (1,2,3-cd) pyrene	0.028
Naphthalene	0.028
Phenanthrene	0.028
Toluene	0.008
Xylenes	0.014
Lead	0.037

K095 nonwastewaters

Concentration (in mg/kg)

1,1,1,2-Tetrachloroethane	5.6
1,1,2,2-Tetrachloroethane	5.6
Tetrachloroethene	6.0
1,1,2-Trichloroethane	6.0
Trichloroethylene	5.6
Hexachloroethane	28.0
Pentachloroethane	5.6

K096 nonwastewaters concentration (in mg/kg)

1,3-Dichlorobenzene	5.6
Pentachloroethane	5.6
1,1,1,2-Tetrachloroethane	5.6
1,1,2,2-Tetrachloroethane	5.6
Tetrachloroethylene	6.0
1,2,4-Trichlorobenzene	19.0
Trichloroethylene	5.6
1,1,2-Trichloroethane	6.0

K099 nonwastewaters Concentration (in mg/kg)

2,4-Dichlorophenoxyacetic acid	1.0
Hexachlorodibenzo-p-dioxins	0.001
Hexachlorodibenzofurans	0.001
Pentachlorodibenzo-p-dioxins	0.001
Pentachlorodibenzofurans	0.001
Tetrachlorodibenzo-p-dioxins	0.001
Tetrachlorodibenzofurans	0.001

K099 wastewaters Concentration (in mg/l)

2,4-Dichlorophenoxyacetic acid	1.0
Hexachlorodibenzo-p-dioxins	0.001
Hexachlorodibenzofurans	0.001
Pentachlorodibenzo-p-dioxins	0.001
Pentachlorodibenzofurans	0.001
Tetrachlorodibenzo-p-dioxins	0.001
Tetrachlorodibenzofurans	0.001

K101 nonwastewaters (Low Arsenic Subcategory-less than 1% total arsenic) (see also Table CCWE in s. NR 675.21) Concentration (in mg/kg)

Ortho-Nitroaniline	14.0
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K101 wastewaters	Concentration (in mg/l)
Ortho-Nitroaniline	0.27
Arsenic	2.0
Cadmium	0.24
Lead	0.11
Mercury	0.027

K102 nonwastewaters (Low Arsenic Subcategory - less than 1% total arsenic) (see also Table CCWE in s. NR 675.21)

Ortho Nitrophenol	13.0
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K102 wastewaters	Concentration (in mg/l)
Ortho-Nitrophenol	0.028
Arsenic	2.0
Cadmium	0.24
Lead	0.11
Mercury	0.027

K103 nonwastewaters	Concentration (in mg/kg)
Aniline	5.6
Benzene	6.0
2,4-Dinitrophenol	5.6
Nitrobenzene	5.6
Phenol	5.6

K103 wastewaters	Concentration (in mg/l)
Aniline	4.5
Benzene	0.15
2,4-Dinitrophenol	0.61
Nitrobenzene	0.073
Phenol	1.4

K104 nonwastewaters	Concentration (in mg/kg)
Aniline	5.6
Benzene	6.0
2,4-Dinitrophenol	5.6

Nitrobenzene	5.6
Phenol	5.6
Cyanides (Total)	1.8

K104 wastewaters Concentration (in mg/l)

Aniline	4.5
Benzene	0.15
2,4-Dinitrophenol	0.61
Nitrobenzene	0.073
Phenol	1.4
Cyanides (Total)	2.7

K115 wastewaters (see also Table CCWE in s. NR 675.21) Concentration (in mg/l)

Nickel	0.47
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P013 nonwastewaters Concentration (in mg/kg)

Cyanides (Total)	110.0
Cyanides (Amenable)	9.1

P013 wastewaters Concentration (in mg/l)

Cyanides (Total)	1.9
Cyanides (Amenable)	0.10

P021 nonwastewaters Concentration (in mg/kg)

Cyanides (Total)	110.0
Cyanides (Amenable)	9.1

P021 wastewaters Concentration (in mg/l)

Cyanides (Total)	1.9
Cyanides (Amenable)	0.10

P029 nonwastewaters Concentration (in mg/kg)

Cyanides (Total)	110.0
Cyanides (Amenable)	9.1

P029 wastewaters Concentration (in mg/l)

Cyanides (Total)	1.9
Cyanides (Amenable)	0.10

P030 nonwastewaters Concentration (in mg/kg)

Cyanides (Total)	110.0
Cyanides (Amenable)	9.1

P030 wastewaters Concentration (in mg/l)

Cyanides (Total)	1.9
Cyanides (Amenable)	0.10

P039 nonwastewaters Concentration (in mg/kg)

Disulfoton	0.1
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P039 wastewaters Concentration (in mg/l)

Disulfoton	0.025
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P063 nonwastewaters Concentration (in mg/kg)

Cyanides (Total)	110.0
Cyanides (Amenable)	9.1

P063 wastewaters Concentration (in mg/l)

Cyanides (Total)	1.9
Cyanides (Amenable)	0.10

P071 nonwastewaters Concentration (in mg/kg)

Methyl parathion 0.1

P071 wastewaters Concentration (in mg/l)

Methyl parathion 0.025

P074 nonwastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/kg)

Cyanides (Total) 110.0

Cyanides (Amenable) 9.1

P074 wastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/l)

Cyanides (Total) 1.9

Cyanides (Amenable) 0.10

Nickel 0.44

P089 nonwastewaters Concentration (in mg/kg)

Parathion 0.1

P089 wastewaters Concentration (in mg/l)

Parathion 0.025

P094 nonwastewaters Concentration (in mg/kg)

Phorate 0.1

P094 wastewaters Concentration (in mg/l)

Phorate 0.025

P097 nonwastewaters Concentration (in mg/kg)

Famphur 0.1

P097 wastewaters Concentration (in mg/l)
Famphur 0.025

P098 nonwastewaters Concentration (in mg/kg)
Cyanides (Total) 110.0
Cyanides (Amenable) 9.1

P098 wastewaters Concentration (in mg/l)
Cyanides (Total) 1.9
Cyanides (Amenable) 0.10

P099 nonwastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/kg)
Cyanides (Total) 110.0
Cyanides (Amenable) 9.1

P099 wastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/l)
Cyanides (Total) 1.9
Cyanides (Amenable) 0.10

P104 nonwastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/kg)
Cyanides (Total) 110.0
Cyanides (Amenable) 9.1

P104 wastewaters (see also Table CCWE
in s. NR 675.21) Concentration (in mg/l)
Cyanides (Total) 1.9
Cyanides (Amenable) 0.10

P106 nonwastewaters Concentration (in mg/kg)
Cyanides (Total) 110.0
Cyanides (Amenable) 9.1

P106 wastewaters Concentration (in mg/l)
Cyanides (Total) 1.9
Cyanides (Amenable) 0.10

P121 nonwastewaters Concentration (in mg/kg)
Cyanides (Total) 110.0
Cyanides (Amenable) 9.1

P121 wastewaters Concentration (in mg/l)
Cyanides (Total) 1.9
Cyanides (Amenable) 0.10

U028 nonwastewaters Concentration (in mg/kg)
Bis-(2-ethylhexyl) phthalate 28.0

U028 wastewaters Concentration (in mg/l)
Bis-(2-ethylhexyl) phthalate 0.54

U069 nonwastewaters Concentration (in mg/kg)
Di-n-butyl phthalate 28.0

U069 wastewaters Concentration (in mg/l)
Di-n-butyl phthalate 0.54

U088 nonwastewaters Concentration (in mg/kg)

Diethyl phthalate	28.0
U088 wastewaters	Concentration (in mg/l)
Diethyl phthalate	0.54
U102 nonwastewaters	Concentration (in mg/kg)
Dimethyl phthalate	28.0
U102 wastewaters	Concentration (in mg/l)
Dimethyl phthalate	0.54
U107 nonwastewaters	Concentration (in mg/kg)
Di-n-octyl phthalate	28.0
U107 wastewaters	Concentration (in mg/l)
Di-n-octyl phthalate	0.54
U190 nonwastewaters	Concentration (in mg/kg)
Phthalic anhydride (measured as Phthalic acid)	28.0
U190 wastewaters	Concentration (in mg/l)
Phthalic anhydride (measured as Phthalic acid)	0.54
U235 nonwastewaters	Concentration (in mg/kg)
tris-(2,3-Dibromopropyl) phosphate	0.1
U235 wastewaters	Concentration (in mg/l)

tris-(2,3-Dibromopropyl) phosphate

0.025

No Land Disposal for:

K005 Nonwastewaters generated by the process described in the waste listing description, and disposed after June 8, 1989, and not generated in the course of treating wastewater forms of these wastes. (Based on No Generation)

K007 Nonwastewaters generated by the process described in the waste listing description, and disposed after June 8, 1989, and not generated in the course of treating wastewater forms of these wastes. (Based on No Generation)

K021 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on No Generation).

K025 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on No Generation).

K036 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on No Generation).

K044 (Based on Reactivity)

K045 (Based on Reactivity)

K047 (Based on Reactivity)

K060 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on No Generation).

K061 Nonwastewaters-High Zinc Subcategory (greater than or equal to 15% total zinc) (Based on Recycling): effective 8/8/90

K069 Nonwastewaters-Non-Calcium Sulfate Subcategory Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on No Generation).

K100 Nonwastewater forms of these wastes generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes (based on Recycling).

(2) When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue shall meet the lowest treatment standard for the constituent of concern.

NR 675.24 VARIANCE FROM A TREATMENT STANDARD. (1)(a) Where the treatment standard is expressed as a concentration in a waste or waste extract and a waste cannot be treated to the specified level, or where the treatment technology is not appropriate to the waste, the generator or treatment facility may petition EPA for a variance from the treatment standard under 40 CFR 268.44 as of July 1, 1989. The petitioner shall demonstrate that because the physical or chemical properties of the waste differ significantly from wastes analyzed in developing the treatment standard, the waste cannot be treated to specified levels or by the specified methods.

(b) If EPA denies the petition for a variance under 40 CFR 268.44 as of July 1, 1989, the department shall recognize that denial.

(c) Generators or owners or operators of treatment facilities who have had their petitions for a variance approved by EPA under 40 CFR 268.44 as of July 1, 1989, shall continue to treat their wastes in compliance with ss. NR 675.20 to 675.23 unless and until the department recognizes EPA's variance. Generators or owners or operators of treatment facilities may petition the department to recognize an EPA variance by submitting the following to the department:

1. Copies of all materials and information submitted to EPA concerning the variance under 40 CFR 268.44 as of July 1, 1989;

2. Copies of all material and information received from EPA, including the EPA notice of approval, concerning the variance under 40 CFR 268.44 as of July 1, 1989; and

3. All other information that the department determines is necessary to evaluate the request for a variance.

(d) When determining whether to recognize an EPA granted variance under 40 CFR 268.44 as of July 1, 1989, the department shall:

1. Consider all available information including, but not limited to, the information submitted by the applicant to EPA; and

2. Apply the same criteria as applied by EPA under 40 CFR 268.44 as of July 1, 1989.

(e) The department shall recognize an EPA granted variance unless the department clearly establishes that the variance would threaten human health and the environment.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(2) During the petition review process, the applicant shall comply with all restrictions on land disposal under this chapter.

(3) Approval by EPA and the department of a variance from a treatment standard under sub. (1) shall allow a facility to land dispose of prohibited waste under this chapter.

NR 675.30 PROHIBITION ON STORAGE. (1) Except as provided for in this section, the storage of hazardous wastes restricted from land disposal under this chapter or 42 USC 6924 is prohibited, unless the following conditions are met:

Note: The publication containing title 42 of the united states code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

(a) A generator stores the wastes in tanks or containers on-site solely for the purpose of the accumulation of the quantities of hazardous waste as necessary to facilitate proper recovery, treatment or disposal and the generator complies with the requirements in chs. NR 610 and 615. A generator existing on the effective date of a regulation under this chapter and storing hazardous wastes for longer than 90 days due to the regulations under this chapter becomes an owner or operator of a storage facility and shall obtain a hazardous waste operating license. A facility may qualify for an interim license upon compliance with the regulations governing interim license issuance under ch. NR 680.

(b) An owner or operator of a hazardous waste treatment, storage or disposal facility stores the wastes in tanks or containers solely for the purpose of the accumulation of the quantities of hazardous waste as necessary to facilitate proper recovery, treatment or disposal and:

1. Each container is clearly marked to identify its contents and the date each period of accumulation begins;

2. Each tank is clearly marked with a description of its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, or the information for each tank is recorded and maintained in the operating record at that facility. Regardless of whether the tank itself is marked, an owner or operator shall comply with the operating record requirements specified in ch. NR 630.

(c) A transporter stores manifested shipments of the wastes at a transfer facility for 10 days or less.

(2) An owner or operator of a treatment, storage or disposal facility may store the wastes for up to one year unless the department demonstrates that the storage was not solely for the purpose of accumulation of the quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal.

(3) An owner or operator of a treatment, storage or disposal facility may store the wastes beyond one year; however, the owner or operator bears the burden of proving that the storage was solely for the purpose of accumulation of the quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal.

(4) If a generator's waste is exempt from a prohibition against the type of land disposal utilized for the waste, the prohibition in sub. (1) does not apply during the period of the exemption.

Note: Examples of exemptions from the prohibition against the type of land disposal include a case-by-case extension granted under s. NR 675.05(1), an approved petition granted under 40 CFR 268.6 as of July 1, 1988 or a national capacity variance granted under 40 CFR 268 Subpart C.

(5) The prohibition in sub. (1) does not apply to hazardous wastes that meet the treatment standards specified under ss. NR 675.21 to 675.23, or the treatment standards specified under the variance in s. NR

675.24, or where treatment standards have not been specified is in compliance with the applicable prohibitions in ss. NR 675.10 to 675.14, or 42 USC 6924(d).

Note: The publication containing title 42 of the united states code may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

(6) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm shall be stored at a facility that meets the requirements of ch. NR 157 and shall be removed from storage and treated or disposed as required by this chapter within one year of the date when the wastes are first placed into storage. The provisions of sub. (3) do not apply to the PCB wastes prohibited under s. NR 675.12.

APPENDIX I - TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

1.0 SCOPE AND APPLICATION

1.1 The TCLP is designed to determine the mobility of both organic and inorganic contaminants present in liquid, solid and multiphasic wastes.

1.2 If a total analysis of the waste demonstrates that individual contaminants are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory thresholds could not possibly be exceeded, the TCLP need not be run.

2.0 SUMMARY OF METHOD (see Figure 1)

2.1 For liquid wastes (i.e., those containing insignificant solid material), the waste, after filtration through a 0.6- to 0.8-micron (um) glass fiber filter, is defined as the TCLP extract.

2.2 For wastes comprised of solids or for wastes containing significant amounts of solid material, the particle-size of the waste is reduced (if necessary), the liquid phase, if any, is separated from the solid phase and stored for later analysis. The solid phase is extracted with an amount of extraction fluid equal to 20 times the weight of the solid phase. The extraction fluid employed is a function of the alkalinity of the solid phase of the waste. A special extractor vessel is used when testing for volatiles (see Table 1). Following extraction, the liquid extract is separated from the solid phase by 0.6- to 0.8-um glass fiber filter filtration.

2.3 If compatible (i.e., multiple phases will not form on combination), the initial liquid phase of the waste is added to the liquid extract, and these liquids are analyzed together. If incompatible, the liquids are analyzed separately and the results are mathematically combined to yield a volume-weighted average concentration.

3.0 INTERFERENCES

3.1. Potential interferences that may be encountered during analysis are discussed in the individual analytical methods.

4.0 APPARATUS AND MATERIALS

4.1 Agitation apparatus: An acceptable agitation apparatus is one which is capable of rotating the extraction vessel in an end-over-end fashion (see Figure 2) at 30 ± 2 rpm. Suitable devices known to EPA are identified in Table 2.

4.2 Extraction Vessel:

4.2.1 Zero-Headspace Extraction Vessel (ZHE). This device is for use only when the waste is being tested for the mobility of volatile constituents (see Table 1). The ZHE is an extraction vessel that allows for liquid/solid separation within the device, and which effectively precludes headspace (as depicted in Figure 3). This type of vessel allows for initial liquid/solid separation, extraction and final extract filtration without having to open the vessel (see Step 4.3.1). These vessels shall have an internal volume of 500 to 600 mL and be equipped to accommodate a 90-mm filter. Suitable ZHE devices known to EPA are identified in Table 3. These devices contain viton O-rings which should be replaced frequently.

For the ZHE to be acceptable for use, the piston within the ZHE should be able to be moved with approximately 15 psi or less. If it takes more pressure to move the piston, the O-rings in the device should be replaced. If this does not solve the problem, the ZHE is unacceptable for TCLP analyses and the manufacturer should be contacted.

The ZHE should be checked after every extraction. If the device contains a built-in pressure gauge, pressurize the device to 50 psi, allow it to stand unattended for 1 hour, and recheck the pressure. If the device does not have a built-in pressure gauge, pressurize the device to 50 psi, submerge it in water, and check for the presence of air bubbles escaping from any of the fittings. If pressure is lost, check all fittings and inspect and replace O-rings, if necessary. Retest the device. If leakage problems cannot be solved, the manufacturer should be contacted.

4.2.2 When the waste is being evaluated for other than volatile contaminants, an extraction vessel that does not preclude headspace (e.g., a 2-liter bottle) is used. Suitable extraction vessels include bottles made from various materials, depending on the contaminants to be analyzed and the nature of the waste (see Step 4.3.3). It is recommended that borosilicate glass bottles be used over other types of glass, especially when inorganics are of concern. Plastic bottles may be used only if inorganics are to be investigated. Bottles are available from a number of laboratory suppliers. When this type of extraction vessel is used, the filtration device discussed in Step 4.3.2 is used for initial liquid/solid separation and final extract filtration.

4.2.3 Some ZHEs use gas pressure to actuate the ZHE piston, while others use mechanical pressure (see Table 3). Whereas the volatiles procedure (see Section 9.0) refers to pounds-per-square inch (psi), for the mechanically actuated piston, the pressure applied is measured in torque-inch-pounds. Refer to the manufacturer's instructions as to the proper conversion.

4.3 Filtration Devices: It is recommended that all filtrations be performed in a hood.

4.3.1 Zero-Headspace Extractor Vessel (see Figure 3): When the waste is being evaluated for volatiles, the zero-headspace extraction vessel is used for filtration. The device shall be capable of supporting and keeping in place the glass fiber filter, and be able to withstand the pressure needed to accomplish separation (50 psi).

Note: When it is suspected that the glass fiber filter has been ruptured, an in-line glass fiber filter may be used to filter the material within the ZHE.

4.3.2 Filter Holder: When the waste is being evaluated for other than volatile compounds, a filter holder capable of supporting a glass fiber filter and able to withstand the pressure needed to accomplish separation is used. Suitable filter holders range from simple vacuum units to relatively complex systems capable of exerting pressures of up to 50 psi or more. The type of filter holder used depends on the properties of the material to be filtered (see Step 4.3.3). These devices shall have a minimum internal

volume of 300 mL and be equipped to accommodate a minimum filter size of 47 mm. (Filter holders having an internal capacity of 1.5 L or greater and equipped to accommodate a 142 mm diameter filter are recommended.) Vacuum filtration is only recommended for wastes with low solids content (<10%) and for highly granular (liquid-containing) wastes. All other types of wastes should be filtered using positive pressure filtration. Filter holders known to EPA to be suitable for use are shown in Table 4.

4.3.3 Materials of Construction: Extraction vessels and filtration devices shall be made of inert materials which will not leach or absorb waste components. Glass, polytetrafluoroethylene (PTFE), or type 316 stainless steel equipment may be used when evaluating the mobility of both organic and inorganic components. Devices made of high-density polyethylene (HDPE), polypropylene or polyvinyl chloride may be used only when evaluating the mobility of metals. Borosilicate glass bottles are recommended for use over other types of glass bottles, especially when inorganics are constituents of concern.

4.4 Filters: Filters shall be made of borosilicate glass fiber, shall contain no binder materials, and shall have an effective pore size of 0.6- to 0.8-um, or equivalent. Filters known to EPA to meet these specifications are identified in Table 5. Pre-filters may not be used. When evaluating the mobility of metals, filters shall be acid-washed prior to use by rinsing with 1.0 N nitric acid followed by 3 consecutive rinses with deionized distilled water (a minimum of 1-L per rinse is recommended). Glass fiber filters are fragile and should be handled with care.

4.5 pH meters: Any of the commonly available pH meters are acceptable.

4.6 ZHE extract collection devices: TEDLAR® bags or glass, stainless steel or PTFE gas tight syringes are used to collect the initial liquid phase and the final extract of the waste when using the ZHE device. The devices listed are recommended for use under the following conditions.

4.6.1 If a waste contains an aqueous liquid phase or if a waste does not contain a significant amount of non-aqueous liquid (i.e., <1% of total waste), the TEDLAR® bag should be used to collect and combine the initial liquid and solid extract. The syringe is not recommended in these cases.

4.6.2 If a waste contains a significant amount of non-aqueous initial liquid phase (i.e., >1% of total waste), the syringe or the TEDLAR® bag may be used for both the initial solid/liquid separation and the final extract filtration. However, analysts should use one or the other, not both.

4.6.3 If the waste contains no initial liquid phase (is 100% solid) or has no significant solid phase (is 100% liquid), either the TEDLAR® bag or the syringe may be used. If the syringe is used, discard the first 5 mL of liquid expressed from the device. The remaining aliquots are used for analysis.

4.7 ZHE extraction fluid transfer devices: Any device capable of transferring the extraction fluid into the ZHE without changing the nature of the extraction fluid is acceptable (e.g., a constant displacement pump, a gas tight syringe, pressure filtration unit (see Step 4.3.2) or another ZHE device).

4.8 Laboratory balance: Any laboratory balance accurate to within ± 0.01 grams may be used (all weight measurements are to be within ± 0.1 grams).

5.0 REAGENTS

5.1 Reagent water: Reagent water is defined as water in which an interferant is not observed at or above the method detection limit of the analyte(s) of interest. For non-volatile extractions, ASTM Type II water, or equivalent meets the definition of reagent water. For volatile extractions, it is recommended that reagent water be generated by any of the following methods. Reagent water should be monitored periodically for impurities.

5.1.1 Reagent water for volatile extractions may be generated by passing tap water through a carbon filter bed containing about 500 grams of activated carbon (Calgon Corp., Filtrasorb-300 or equivalent).

5.1.2 A water purification system (Millipore Super-Q or equivalent) may also be used to generate reagent water for volatile extractions.

5.1.3 Reagent water for volatile extractions may also be prepared by boiling water for 15 minutes. Subsequently, while maintaining the water temperature at $90 \pm 5^\circ\text{C}$, bubble a contaminant-free inert gas (e.g., nitrogen) through the water for 1 hour. While still hot, transfer the water to a narrow-mouth screw-cap bottle under zero-headspace and seal with a Teflon-lined septum and cap.

5.2 1.0 N Hydrochloric acid (HCl) made from ACS reagent grade.

5.3 1.0 N Nitric acid (HNO₃) made from ACS reagent grade.

5.4 1.0 N Sodium hydroxide (NaOH) made from ACS reagent grade.

5.5 Glacial acetic acid (HOAc) ACS reagent grade.

5.6 Extraction fluid:

5.6.1 Extraction fluid #1: This fluid is made by adding 5.7 mL glacial HOAc to 500 mL of the appropriate water (see Step 5.1), adding 64.3 mL of 1.0 N NaOH, and diluting to a volume of 1 liter. When correctly prepared, the pH of this fluid will be 4.93 ± 0.05 .

5.6.2 Extraction fluid #2: This fluid is made by diluting 5.7 mL glacial HOAc with ASTM Type II water (see Step 5.1) to a volume of 1 liter. When correctly prepared, the pH of this fluid will be 2.88 ± 0.05 .

Note: It is suggested that these extraction fluids be monitored frequently for impurities. The pH should be checked prior to use to ensure that these fluids are made up accurately.

5.7 Analytical standards shall be prepared according to the appropriate analytical method.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 All samples shall be collected using an appropriate sampling plan.

6.2 At least 2 separate representative samples of a waste should be collected. If volatile organics are of concern, a third sample shall be collected. The first sample is used in several preliminary TCLP evaluations (e.g., to determine the percent solids of the waste; to determine if the waste contains insignificant solids (i.e., the waste is its own extract after filtration); to determine if the solid portion of the waste requires particle-size reduction; and to determine which of the 2 extraction fluids are to be used for the non-volatile TCLP extraction of the waste). These preliminary evaluations are identified in Section 7.0. The second and, if required, third samples are extracted using the TCLP non-volatile procedure (Section 8.0) and volatile procedure (Section 9.0), respectively.

6.3 Preservatives may not be added to samples.

6.4 Samples may be refrigerated unless refrigeration results in irreversible physical change to the waste (e.g., precipitation).

6.5 When the waste is to be evaluated for volatile contaminants, care should be taken to minimize the loss of volatiles. Samples shall be taken and stored in a manner to prevent the loss of volatile

contaminants. If possible, it is recommended that any necessary particle-size reduction should be conducted as the sample is being taken (see Step 8.5).

6.6 TCLP extracts should be prepared for analysis and analyzed as soon as possible following extraction. If they need to be stored, even for a short period of time, storage shall be a 4°C, and samples for volatiles analysis may not be allowed to come into contact with the atmosphere (i.e., no headspace). See Section 10.0 (QA requirements) for acceptable sample and extract holding times.

7.0 PRELIMINARY TCLP EVALUATIONS

The preliminary TCLP evaluations are performed on a minimum 100 gram representative sample of waste that will not actually undergo TCLP extraction (designated as the first sample in Step 6.2). These evaluations include preliminary determination of the percent solids of the waste; determination of whether the waste contains insignificant solids, and is therefore, its own extract after filtration; determination of whether the solid portion of the waste requires particle-size reduction; and determination of which of the two extraction fluids are to be used for the non-volatile TCLP extraction of the waste.

7.1 Preliminary determination of percent solids: Percent solids is defined as that fraction of a waste sample (as a percentage of the total sample) from which no liquid may be forced out by an applied pressure, as follows.

7.1.1 If the waste will obviously yield no free liquid when subjected to pressure filtration (i.e., is 100% solids) proceed to Step 7.4.

7.1.2 If the sample is liquid or multiphasic, liquid/solid separation to make a preliminary determination of percent solids is required. This involves the filtration device described in Step 4.3.2 and is outlined in Steps 7.1.3 to 7.1.9.

7.1.3 Pre-weigh the filter and the container that will receive the filtrate.

7.1.4 Assemble the filter holder and filter following the manufacturer's instructions. Place the filter on the support screen and secure.

7.1.5 Weigh out a representative subsample of the waste (100 gram minimum) and record the weight.

7.1.6 Allow slurries to stand to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration. Centrifugation is to be used only as an aid to filtration. If used, the liquid should be decanted and filtered followed by filtration of the solid portion of the waste through the same filtration system.

7.1.7 Quantitatively transfer the waste sample to the filter holder (liquid and solid phases). If filtration of the waste at 4°C reduces the amount of expressed liquid over what would be expressed at room temperature then allow the sample to warm up to room temperature in the device before filtering.

Note: If waste material (>1% of original sample weight) has obviously adhered to the container used to transfer the sample to the filtration apparatus, determine the weight of this residue and subtract it from the sample weight determined in Step 7.1.5 to determine the weight of the waste sample that will be filtered.

Gradually apply vacuum or gentle pressure of 1-10 psi, until air or pressurizing gas moves through the filter. If this point is not reached under 10 psi, and if no additional liquid has passed through the filter in any 2-minute interval, slowly increase the pressure in 10 psi increments to a maximum of 50 psi. After each incremental increase of 10 psi, if the pressurizing gas has not moved through the filter, and if no additional liquid has passed through the filter in any 2-minute interval, proceed to the next 10 psi increment. When the pressurizing gas begins to move through the filter, or when liquid flow has ceased at

50 psi (i.e., filtration does not result in any additional filtrate within any 2-minute period), filtration is stopped.

Note: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

7.1.8 The material in the filter holder is defined as the solid phase of the waste, and the filtrate is defined as the liquid phase.

Note: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. But even after applying vacuum or pressure filtration, as outlined in Step 7.1.7, this material may not filter. If this is the case, the material within the filtration device is defined as a solid. The original filter is not to be replaced with a fresh filter under any circumstances. Only one filter is used.

7.1.9 Determine the weight of the liquid phase by subtracting the weight of the filtrate container (see Step 7.1.3) from the total weight of the filtrate-filled container. The weight of the solid phase of the waste sample is determined by subtracting the weight of the liquid phase from the weight of the total waste sample, as determined in Step 7.1.5 or 7.1.7. Record the weight of the liquid and solid phases. Calculate the percent solids as follows:

$$\text{Percent solids} = \frac{\text{Weight of solid (Step 7.1.9)}}{\text{Total Weight of waste (Step 7.1.5 or 7.1.7)}} \times 100$$

7.2 Determination of whether waste is liquid or has insignificant amounts of solid material: If the sample obviously has a significant amount of solid material, the solid phase shall be subjected to extraction; proceed to Step 7.3 to determine if the waste requires particle-size reduction (and to reduce particle-size, if necessary). Determine whether the waste is liquid or has insignificant amounts of solid material (which need not undergo extraction) as follows:

7.2.1 Remove the solid phase and filter from the filtration apparatus.

7.2.2 Dry the filter and solid phase at $100 \pm 20^\circ\text{C}$ until two successive weighings yield the same value within $\pm 1\%$. Record final weight.

Note: Caution should be taken to insure that the subject solid will not flash upon heating. It is recommended that the drying oven be vented to a hood or appropriate device.

7.2.3 Calculate the percent dry solids as follows:

$$\text{Percent dry solids} = \frac{\text{Weight of dry waste and filter - tared waste of filter}}{\text{Initial weight of waste (Step 7.1.5 or 7.1.1)}} \times 100$$

7.2.4 If the percent dry solids is less than 0.5%, consult Step 6.2 and proceed to Section 8.0 if non-volatiles in the waste are of concern, and to Section 9.0 if volatiles are of interest. In this case, the waste, after filtration is defined as the TCLP extract. If the percent dry solids is greater than or equal to 0.5%, and if the non-volatile TCLP is to be performed, return to the beginning of this Section (7.0) with a new representative waste sample, so that it can be determined if particle-size reduction is necessary (Step 7.3), and so that the appropriate extraction fluid may be determined (Step 7.4) on a fresh portion of the solid phase of the waste. If only the volatile TCLP is to be performed, see the Note in Step 7.4.

7.3 Determination of whether the wastes require particle-size reduction (particle-size is reduced during this Step): Using the solid portion of the waste, evaluate the solid for particle-size. If the solid has a surface area per gram of material equal to or greater than 3.1 cm^2 , or is smaller than 1 cm in its narrowest

dimension (e.g., is capable of passing through a 9.5-mm (0.375-inch) standard sieve), particle-size reduction is not required (proceed to Step 7.4). If the surface area is smaller or the particle-size larger than described above, the solid portion of the waste is prepared for extraction by crushing, cutting or grinding the waste to a surface area or particle-size as described above.

Note: Surface area requirements are meant for filamentous (e.g., paper, cloth) and similar waste materials. Actual measurement of surface area is not required; nor is it recommended.

7.4 Determination of appropriate extraction fluid: If the solid content is greater than or equal to 0.5% of the waste and if TCLP extraction for non-volatile constituents will take place (Section 8.0), determination of the appropriate fluid (Step 5.6) to use for the non-volatiles extraction is performed as follows.

Note: TCLP extraction for volatile constituents entails using only extraction fluid #1 (Step 5.6.1). Therefore, if TCLP extraction for non-volatiles extraction is not required, proceed to section 9.0.

7.4.1 Weigh out a small subsample of the solid phase of the waste, reduce the solid (if necessary) to a particle-size of approximately 1mm in diameter or less, and transfer 5.0 grams of the solid phase of the waste to a 500-mL beaker or Erlenmeyer flask.

7.4.2 Add 96.5 mL of reagent water (ASTM Type II) to the beaker, cover with a watchglass, and stir vigorously for 5 minutes using a magnetic stirrer. Measure and record the pH. If the pH is <5.0, extraction fluid #1 is used. Proceed to Section 8.0.

7.4.3 If the pH from Step 7.4.2 is >5.0, add 3.5 mL 1.0 N HCl, slurry briefly, cover with a watchglass, heat to 50°C, and hold at 50°C for 10 minutes.

7.4.4 Let the solution cool to room temperature and record the pH. If the pH is <5.0, use extraction fluid #1. If the pH is >5.0, use extraction fluid #2. Proceed to Section 8.0.

7.5 The sample of waste used for performance of this Section may not be used any further. Other samples of the waste (see Step 6.2) shall be employed for the Section 8.0 and 9.0 extractions.

8.0 PROCEDURE WHEN VOLATILES ARE NOT INVOLVED

Although a minimum sample size of 100 grams (solid and liquid phases) is required, a larger sample size may be more appropriate, depending on the solids content of the waste sample (percent solids, see Step 7.1), whether the initial liquid phase of the waste will be miscible with the aqueous extract of the solid, and whether inorganics, semivolatile organics, pesticides, and herbicides are all analytes of concern. Enough solids should be generated for extraction such that the volume of TCLP extract will be sufficient to support all of the analyses required. If the amount of extract generated by the performance of a single TCLP extraction will not be sufficient to perform all of the analyses to be conducted, it is recommended that more than one extraction be performed and that the extracts from each extraction be combined and then aliquoted for analysis.

8.1 If the waste will obviously yield no liquid when subjected to pressure filtration (i.e., is 100% solid, see Step 7.1), weigh out a representative subsample of the waste (100 gram minimum) and proceed to Step 8.9.

8.2 If the sample is liquid or multiphasic, liquid/solid separation is required. This involves the filtration device described in Step 4.3.2 and is outlined in Steps 8.3 to 8.8.

8.3 Pre-weigh the container that will receive the filtrate.

8.4 Assemble the filter holder and filter following the manufacturer's instructions. Place the filter on the support screen and secure. Acid wash the filter if evaluating the mobility of metals (see Step 4.4).

Note: Acid washed filters may be used for all non-volatile extractions even when metals are not of concern.

8.5 Weigh out a representative subsample of the waste (100 gram minimum) and record the weight. If the waste was shown to contain <0.5% dry solids (Step 7.2), the waste, after filtration is defined as the TCLP extract. Therefore, enough of the sample should be filtered so that the amount of filtered liquid will support all of the analyses required of the TCLP extract. For wastes containing >0.5% dry solids (Steps 7.1 or 7.2), use the percent solids information obtained in Step 7.1 to determine the optimum sample size (100 gram minimum) for filtration. Enough solids should be generated after filtration to support the analyses to be performed on the TCLP extract.

8.6 Allow slurries to stand to permit the solid phase to settle. Wastes that settle slowly may be centrifuged prior to filtration. Centrifugation is to be used only as an aid to filtration. If used, the liquid should be decanted and filtered followed by filtration of the solid portion of the waste through the same filtration system.

8.7 Quantitatively transfer the waste sample (liquid and solid phases) to the filter holder (see Step 4.3.2). If filtration of the waste at 4° C reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering.

Note: If waste material (>1% of the original sample weight) has obviously adhered to the container used to transfer the sample to the filtration apparatus, determine the weight of this residue and subtract it from the sample weight determined in Step 8.5, to determine the weight of the waste sample that will be filtered.

Gradually apply vacuum or gentle pressure of 1-10 psi, until air or pressurizing gas moves through the filter. If this point is not reached under 10 psi, and if no additional liquid has passed through the filter in any 2-minute interval, slowly increase the pressure in 10-psi increments to maximum of 50 psi. After each incremental increase of 10 psi, if the pressurizing gas has not moved through the filter, and if no additional liquid has passed through the filter in any 2-minute interval, proceed to the next 10-psi increment. When the pressurizing gas begins to move through the filter, or when the liquid flow has ceased at 50 psi (i.e., filtration does not result in any additional filtrate within a 2-minute period), filtration is stopped.

Note: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

8.8 The material in the filter holder is defined as the solid phase of the waste, and the filtrate is defined as the liquid phase. Weigh the filtrate. The liquid phase may now be either analyzed (see Step 8.13) or stored at 4° C until time of analysis.

Note: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. But even after applying vacuum or pressure filtration, as outlined in Step 8.7, this material may not filter. If this is the case, the material within the filtration device is defined as a solid and is carried through the extraction as a solid. The original filter is not to be replaced with a fresh filter under any circumstances. Only one the filter is used.

8.9 If the waste contains <0.5% dry solids (see Step 7.2), proceed to Step 8.13. If the waste contains >0.5% dry solids (see Step 7.1 or 7.2), and if particle-size reduction of the solid was needed in Step 7.3, proceed to Step 8.10. If particle-size reduction was not required in Step 7.3, quantitatively transfer the solid material into the extractor vessel, including the filter used to separate the initial liquid from the solid phase. Proceed to Step 8.11.

8.10 The solid portion of the waste is prepared for extraction by crushing, cutting or grinding the waste to a surface area of particle-size as described in Step 7.3. When the surface area of particle-size has been appropriately altered, quantitatively transfer the solid material into the extractor vessel, including the filter used to separate the initial liquid from the solid phase.

Note: Sieving of the waste through a sieve that is not Teflon coated should not be done due to avoid possible contamination of the sample. Surface area requirements are meant for filamentous (e.g., paper, cloth) and similar waste materials. Actual measurement of surface area is not recommended.

8.11 Determine the amount of extraction fluid to add to the extractor vessel as follows:

Weight of extraction fluid =

$$\frac{20 \times \% \text{ solids (Step 7.1)} \times \text{weight of waste filtered (Step 8.5 or 8.7)}}{100}$$

Slowly add this amount of appropriate extraction fluid (see Step 7.4) to the extractor vessel. Close the extractor bottle tightly (it is recommended that Teflon tape be used to ensure a tight seal), secure in rotary extractor device, and rotate at 30 ± 2 rpm for 18 ± 2 hours. Ambient temperature (i.e., temperature of room in which extraction is to take place) shall be maintained at $22 \pm 3^\circ$ C during the extraction period.

Note: As agitation continues, pressure may build up within the extractor bottle for some types of wastes (e.g., limed or calcium carbonate containing waste may evolve gases such as carbon dioxide). To relieve excess pressure, the extractor bottle may be periodically opened (e.g., after 15 minutes, 30 minutes, and 1 hour) and vented into a hood.

8.12 Following the 18 ± 2 hour extraction, the material in the extractor vessel is separated into its component liquid and solid phases by filtering through a new glass fiber filter, as outlined in Step 8.7. For final filtration of the TCLP extract, the glass fiber filter may be changed, if necessary, to facilitate filtration. Filter(s) shall be acid-washed (see Step 4.4) if evaluating the mobility of metals.

8.13 The TCLP extract is now prepared as follows:

8.13.1 If the waste contained no initial liquid phase, the filtered liquid material obtained from Step 8.12 is defined as the TCLP extract. Proceed to Step 8.14.

8.13.2 If compatible (e.g., multiple phases will not result on combination), the filtered liquid resulting from Step 8.12 is combined with the initial liquid phase of the waste as obtained in Step 8.7. This combined liquid is defined as the TCLP extract. Proceed to Step 8.14.

8.13.3 If the initial liquid phase of the waste, as obtained from Step 8.7, is not or may not be compatible with the filtered liquid resulting from Step 8.12, these liquids are not combined. These liquids, collectively defined as the TCLP extract, are analyzed separately, and the results are combined mathematically. Proceed to Step 8.14.

8.14 Following collection of the TCLP extract, it is recommended that the pH of the extract be recorded. The extract shall be immediately aliquoted for analysis and properly preserved (metals aliquots shall be acidified with nitric acid to pH <2; all other aliquots shall be stored under refrigeration (4° C) until analyzed). The TCLP extract shall be prepared and analyzed according to appropriate analytical methods. TCLP extracts to be analyzed for metals, other than mercury, shall be acid digested. If the individual phases are to be analyzed separately, determine the volume of the individual phases (to $\pm 5\%$), conduct the appropriate analyses, and combine the results mathematically by using a simple volume-weighted average:

$$\text{Final Analyte Concentration} = \frac{(V_1)(C_1) + (V_2)(C_2)}{V_1 + V_2}$$

where:

V1=The volume of the first phase (L).

C1=The concentration of the contaminant of concern in the first phase (mg/L).

V2=The volume of the second phase (L).

C2=The concentration of the contaminant of concern in the second phase (mg/L).

8.15 The contaminant concentrations in the TCLP extract are compared with the thresholds identified in the appropriate regulations. Refer to Section 10.0 for quality assurance requirements.

9.0 PROCEDURE WHEN VOLATILES ARE INVOLVED

The ZHE device is used to obtain TCLP extracts for volatile analysis only. Extract resulting from the use of the ZHE may not be used to evaluate the mobility of non-volatile analytes (e.g., metals, pesticides, etc.).

The ZHE device has approximately a 500-mL internal capacity. Although a minimum sample size of 100 grams was required in the Section 8.0 procedure, the ZHE can only accommodate a maximum of 25 grams of solid (defined as that fraction of a sample from which no liquid (additional) may be forced out by an applied pressure of 50 psi), due to the need to add an amount of extraction fluid equal to 20 times the weight of the solid phase.

The ZHE is charged with sample only once and the device is not opened until the final extract (of the solid) has been collected. Repeated filling of the ZHE to obtain 25 grams of solid is not permitted. The initial filtrate shall be weighed and then stored at 4°C until either analyzed or recombined with the final extract of the solid.

Although the following procedure allows for particle-size reduction during the conduct of the procedure, this could result in the loss of volatile compounds. If possible (e.g., particle-size may be reduced easily by crumbling), particle-size reduction (see Step 9.2) should be conducted on the sample as it is being taken. If necessary, particle-size reduction may be conducted during the procedure.

In carrying out the following steps, do not allow the waste, the initial liquid phase, or the extract to be exposed to the atmosphere for any more time than is absolutely necessary. Any manipulation of these materials should be done when cold (4° C) to minimize loss of volatiles.

9.1 Pre-weigh the (evacuated) container which will receive the filtrate (see Step 4.6), and set aside. If using a TEDLAR® bag, all liquid shall be expressed from the device, whether it be for the initial or final liquid/solid separation, and an aliquot taken from the liquid in the bag, for analysis. The containers listed in Step 4.6 are recommended for use under the following conditions.

9.1.1 If a waste contains an aqueous liquid phase or if the waste does not contain a significant amount of non-aqueous liquid (i.e., <1% of total waste), the TEDLAR® bag shall be used to collect and combine the initial liquid and solid extract. The syringe is not recommended in these cases.

9.1.2 If a waste contains a significant amount of non-aqueous initial liquid phase (i.e., 1% of total waste), the syringe or the TEDLAR® bag may be used for both the initial solid/liquid separation and the final extract filtration. However, analysts should use one or the other, not both.

9.1.3 If the waste contains no initial liquid phase (is 100% solid) or has no significant solid phase (is 100% liquid), either the TEDLAR® bag or the syringe may be used. If the syringe is used, discard the first 5 mL liquid expressed from the device. The remaining aliquots are used for analysis.

9.2 Place the ZHE piston within the body of the ZHE (it may be helpful first to moisten the piston O-rings slightly with extraction fluid). Adjust the piston within the ZHE body to a height that will minimize the distance the piston will have to move once the ZHE is charged with sample (based upon sample size requirements determined from Section 9.0, Step 7.1 and/or 7.2). Secure the gas inlet/outlet flange (bottom flange) onto the ZHE body in accordance with the manufacturer's instructions. Secure the glass fiber filter between the support screens and set aside. Set liquid inlet/outlet flange (top flange) aside.

9.3 If the waste is 100% solid (see Step 7.1), weigh out a representative subsample (25 gram maximum) of the waste, record weight, and proceed to Step 9.5.

9.4 If the waste was shown to contain <0.5% dry solids (Step 7.2), the waste, after filtration is defined as the TCLP extract. Enough of the sample should be filtered so that the amount of filtered liquid will support all of the volatile analyses required. For wastes containing >0.5% dry solids (Steps 7.1 and/or 7.2), use the percent solids information obtained in Step 7.1 to determine the optimum sample size to charge into the ZHE. The appropriate sample size recommended is as follows:

9.4.1 For wastes containing >5% solids (see Step 7.1), weigh out a representative 500 gram sample of waste and record the weight.

9.4.2 For wastes containing >5% solids (see Step 7.1), the amount of waste to charge into the ZHE is determined as follows:

$$\text{Weight of waste to charge ZHE} = \frac{25}{\% \text{ solids (Step 7.1)} \times 100}$$

Weigh out a representative subsample of the waste of the appropriate size and record the weight.

9.5 If particle-size reduction of the solid portion of the waste was required in Step 7.3, proceed to Step 9.6. If particle-size reduction was not required in Step 7.3, proceed to Step 9.7.

9.6 The waste is prepared for extraction by crushing, cutting or grinding the solid portion of the waste to a surface area or particle-size as described in Step 7.3. Wastes and appropriate reduction equipment should be refrigerated, if possible, to 4°C prior to particle-size reduction. The means used to effect particle-size reduction may not generate heat in and of itself. If reduction of the solid phase of the waste is necessary, exposure of the waste to the atmosphere shall be avoided to the extent possible.

Note: Sieving of the waste is not recommended due to the possibility that volatiles may be lost. The use of an appropriately graduated ruler is recommended as an acceptable alternative. Surface area requirements are meant for filamentous (e.g., paper, cloth) and similar waste materials. Actual measurement of surface area is not recommended.

When the surface area or particle-size has been appropriately altered, proceed to Step 9.7.

9.7 Waste slurries need not be allowed to stand to permit the solid phase to settle. Wastes that settle slowly may not be centrifuged prior to filtration.

9.8 Quantitatively transfer the entire sample (liquid and solid phases) quickly to the ZHE. Secure the filter and support screens into the top flange of the device and secure the top flange to the ZHE body in accordance with the manufacturer's instructions. Tighten all ZHE fittings and place the device in the

vertical position (gas inlet/outlet flange on the bottom). Do not attach the extraction collection device to the top plate.

Note: If waste material (>1% of original sample weight) has obviously adhered to the container used to transfer the sample to the ZHE, determine the weight of this residue and subtract it from the sample weight determined in Step 9.4, to determine the weight of the waste sample that will be filtered.

Attach a gas line to the gas inlet/outlet valve (bottom flange) and, with the liquid inlet/outlet valve (top flange) open, begin applying gentle pressure of 1-10 psi (or more if necessary) to force all headspace (into a hood) slowly out of the ZHE device. At the first appearance of liquid from the liquid inlet/outlet valve, quickly close the valve and discontinue pressure. If filtration of the waste at 4°C reduces the amount of expressed liquid over what would be expressed at room temperature, then allow the sample to warm up to room temperature in the device before filtering. If the waste is 100% solid (see Step 7.1), slowly increase the pressure to a maximum of 50 psi to force most of the headspace out of the device and proceed to Step 9.12.

9.9 Attach the evacuated pre-weighed filtrate collection container to the liquid inlet/outlet valve and open the valve. Begin applying gentle pressure of 1-10 psi to force the liquid phase into the filtrate collection container. If no additional liquid has passed through the filter in any 2-minute interval, slowly increase the pressure in 10-psi increments to a maximum of 50 psi. After each incremental increase of 10 psi, if no additional liquid has passed through the filter in any 2-minute interval, proceed to the next 10-psi increment. When liquid flow has ceased such that continued pressure filtration at 50 psi does not result in any additional filtrate within any 2-minute period, filtration is stopped. Close the liquid inlet/outlet valve, discontinue pressure to the piston, and disconnect the filtrate collection container.

Note: Instantaneous application of high pressure can degrade the glass fiber filter and may cause premature plugging.

9.10 The material in the ZHE is defined as the solid phase of the waste and the filtrate is defined as the liquid phase.

Note: Some wastes, such as oily wastes and some paint wastes, will obviously contain some material that appears to be a liquid. But even after applying pressure filtration, this material will not filter. If this is the case, the material within the filtration device is defined as a solid and is carried through the TCLP extraction as a solid.

If the original waste contained <0.5% dry solids (see Step 7.2), this filtrate is defined as the TCLP extract and is analyzed directly. Proceed to Step 9.15.

9.11 The liquid phase may now be either analyzed immediately (see Steps 9.13 to 9.15) or stored at 4°C under minimal headspace conditions until time of analysis. The weight of extraction fluid #1 to add to the ZHE is determined as follows:

$$\text{Weight of extraction fluid} = \frac{20\% \text{ solids (Step 7.1)} \times \text{weight of waste filtered (Step 9.4 or 9.8)}}{100}$$

9.12 The following steps detail how to add the appropriate amount of extraction fluid to the solid material within the ZHE and agitation of the ZHE vessel. Extraction fluid #1 is used in all cases (see Step 5.6).

9.12.1 With the ZHE in the vertical position, attach a line from the extraction fluid reservoir to the liquid inlet/outlet valve. The line used shall contain fresh extraction fluid and should be preflushed with fluid to eliminate any air pockets in the line. Release gas pressure on the ZHE piston (from the gas

inlet/outlet valve), open the liquid inlet/outlet valve, and begin transferring extraction fluid (by pumping or similar means) into the ZHE. Continue pumping extraction fluid into the ZHE until the appropriate amount of fluid has been introduced into the device.

9.12.2 After the extraction fluid has been added, immediately close the liquid inlet/outlet valve and disconnect the extraction fluid line. Check the ZHE to ensure that all valves are in their closed positions. Physically rotate the device in an end-over-end fashion 2 or 3 times. Reposition the ZHE in the vertical position with the liquid inlet/outlet valve on top. Put 5-10 psi behind the piston (if necessary) and slowly open the liquid inlet/outlet valve to bleed out any headspace (into a hood) that may have been introduced due to the addition of extraction fluid. This bleeding shall be done quickly and shall be stopped at the first appearance of liquid from the valve. Re-pressurize the ZHE with 5-10 psi and check all ZHE fittings to ensure that they are closed.

9.12.3 Place the ZHE in the rotary extractor apparatus (if it is not already there) and rotate the ZHE at 30 ± 2 rpm for 18 ± 2 hours. Ambient temperature (i.e., temperature of room in which extraction is to occur) shall be maintained at $22 \pm 3^\circ\text{C}$ during agitation.

9.13 Following the 18 ± 2 hour agitation period, check the pressure behind the ZHE piston by quickly opening and closing the gas inlet/outlet valve and noting the escape of gas. If the pressure has not been maintained (i.e., no gas release observed), the device is leaking. Check the ZHE for leaking as specified in Step 4.2.1, and redo the extraction with a new sample of waste. If the pressure within the device has been maintained, the material in the extractor vessel is once again separated into its component liquid and solid phases. If the waste contained an initial liquid phase, the liquid may be filtered directly into the same filtrate collection container (i.e., TEDLAR® bag) holding the initial liquid phase of the waste, unless doing so would create multiple phases, or unless there is not enough volume left within the filtrate collection container. A separate filtrate collection container shall be used in these cases. Filter through the glass fiber filter, using the ZHE device as discussed in Step 9.9. All extract shall be filtered and collected in the TEDLAR® bag is used, if the extract is multiphasic, or if the waste contained an initial liquid phase (see Steps 4.6 and 9.1).

Note: An in-line glass fiber filter may be used to filter the material within the ZHE when it is suspected that the glass fiber filter has been ruptured.

9.14 If the original waste contained no initial liquid phase, the filtered liquid material obtained from Step 9.13 is defined as the TCLP extract. If the waste contained an initial liquid phase, the filtered liquid material obtained from Step 9.13 and the initial liquid phase (Step 9.9) are collectively defined as the TCLP extract.

9.15 Following collection of the TCLP extract, the extract shall be immediately aliquoted for analysis and stored with minimal headspace at 4°C until analyzed. The TCLP extract will be prepared and analyzed according to the appropriate analytical methods. If the individual phases are to be analyzed separately (i.e., are not miscible), determine the volume of the individual phases (to $\pm 0.5\%$), conduct the appropriate analyses, and combine the results mathematically by using a simple volume-weighted average:

$$\text{Final Analyte Concentration} = \frac{(V_1)(C_1) + (V_2)(C_2)}{V_1 + V_2}$$

where:

V1=The volume of the first phases (L).

C1=The concentration of the contaminant of concern in the first phase (mg/L).

V2=The volume of the second phase (L).

C2=The concentration of the contaminant of concern in the second phase (mg/L).

9.16 The contaminant concentrations in the TCLP extract are compared with the thresholds identified in the appropriate regulations. Refer to Section 10.0 for quality assurance requirements.

10.0 QUALITY ASSURANCE REQUIREMENTS

10.1 All data, including quality assurance data, shall be maintained and available for reference or inspection.

10.2 A minimum of one blank (extraction fluid #1) for every 10 extractions that have been conducted in an extraction vessel shall be employed as a check to determine if any memory effects from the extraction equipment are occurring.

10.3 For each analytical batch (up to 20 samples), it is recommended that a matrix spike be performed. Addition of matrix spikes should occur once the TCLP extract has been generated (i.e., should not occur prior to performance of the TCLP procedure). The purpose of the matrix spike is to monitor the adequacy of the analytical methods used on the TCLP extract and for determining if matrix interferences exist in analyte detection.

10.4 All quality control measures described in the appropriate analytical methods shall be followed.

10.5 The method of standard addition shall be employed for each analyte if: 1) recovery of the compound from the TCLP extract is not between 50 and 150%, or 2) if the concentration of the constituent measured in the extract is within 20% of the appropriate regulatory threshold. If more than one extraction is being run on samples of the same waste (up to 20 samples), the method of standard addition need be applied only once and the percent recoveries applied to the remainder of the extractions.

10.6 Samples shall undergo TCLP extraction within the following time period after sample receipt: Volatiles, 14 days; Semi-Volatiles, 40 days; Mercury, 28 days; and other Metals, 180 days. Extraction of the solid portion of the waste should be initiated as soon as possible following initial solid/liquid separation. TCLP extracts shall be analyzed after generation and preservation within the following periods: Volatiles, 14 days; Semi-Volatiles, 40 days; Mercury, 28 days; and other Metals, 180 days.

Table 1-Volatile Contaminants*

<u>Compounds</u>	<u>CAS No.</u>
Acetone	67-64-1
n-Butyl alcohol	71-36-6
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Methylene chloride	75-09-2
Methyl ethyl ketone	78-93-3
Methyl isobutyl ketone	108-10-1
Tetrachloroethylene	127-18-4
Toluene	108-88-3
1,1,1-Trichloroethane	71-55-6
Trichloroethylene	79-01-6
Trichlorofluoromethane	75-69-4
Xylene	1330-20-7

FOOTNOTE: *Includes compounds identified in the Land Disposal Restrictions Rule. If any or all of these compounds are of concern, the zero-headspace extractor vessel shall be used. If other (non-volatile) compounds are of concern, the conventional bottle extractor shall be used.

Table 2. Suitable Rotary Agitation Apparatus¹

<u>Company</u>	<u>Location</u>	<u>Model</u>
Associated Design and Manufacturing Company	Alexandria, VA (703) 549-5999	4-vessel device, 6-vessel device
Lars Lande Manufacturing	Whitemore Lake, MI (313) 449-4116	10-vessel device, 5-vessel device,
IRA Machine Shop and Laboratory	Santurce, PR (809) 752-4004	16-vessel device
EPRI Extractor		6-vessel device ₂
REXNORD	Milwaukee, WI (414) 643-2850	6-vessel device
Analytical Testing and Consulting Services, Inc.	Warmington, PA (215) 343-4490	4-vessel device

¹Any device that rotates the extraction vessel in an end over end fashion at 30 ± 2 rpm is acceptable.

²Although this device is suitable, it is not commercially made, it may also require retrofitting to accommodate ZHE devices.

Table 3. Suitable Zero-Headspace Extractor Vessels

<u>Company</u>	<u>Location</u>	<u>Model</u>
Associated Design & Manufacturing Co.	Alexandria, VA (703) 549-5999	3740-ZHB, Gas Pressure Device
Millipore Corp.	Bedford, MA (800) 225-3384	SD1 P581 C5, Gas Pressure Device
Analytical Testing & Consulting Services, Inc.	Warrington, PA (215) 343-4490	C102, Mechanical Pressure Device

Table 4. Suitable Filter Holders¹

<u>Company</u>	<u>Location</u>	<u>Model</u>	<u>Size</u>
Nuclepore Corp.	Pleasanton, CA (800) 882-7711	425910	142mm
		410400	47mm
Micro Filtration Systems	Dublin, CA (415) 828-6010	302400	142mm
Millipore Corp.	Bedford, MA (800) 225-3384	YT30142HW	142mm
		XX1004700	47mm

¹Any device capable of separating the liquid from the solid phase of the waste is suitable, providing that it is chemically compatible with the waste and the constituents to be analyzed. Plastic devices (not listed above) may be used when only inorganic contaminants are of concern. The 142 mm size filter holder is recommended.

Table 5. Suitable Filter Media

<u>Company</u>	<u>Location</u>	<u>Model</u>	<u>Pore Size¹</u>
Whatman Laboratory Products, Inc.	Clifton, NJ (201) 773-5800	GFF	0.7

¹ Nominal pore size.

FIGURE 1 - TCLP FLOW CHART

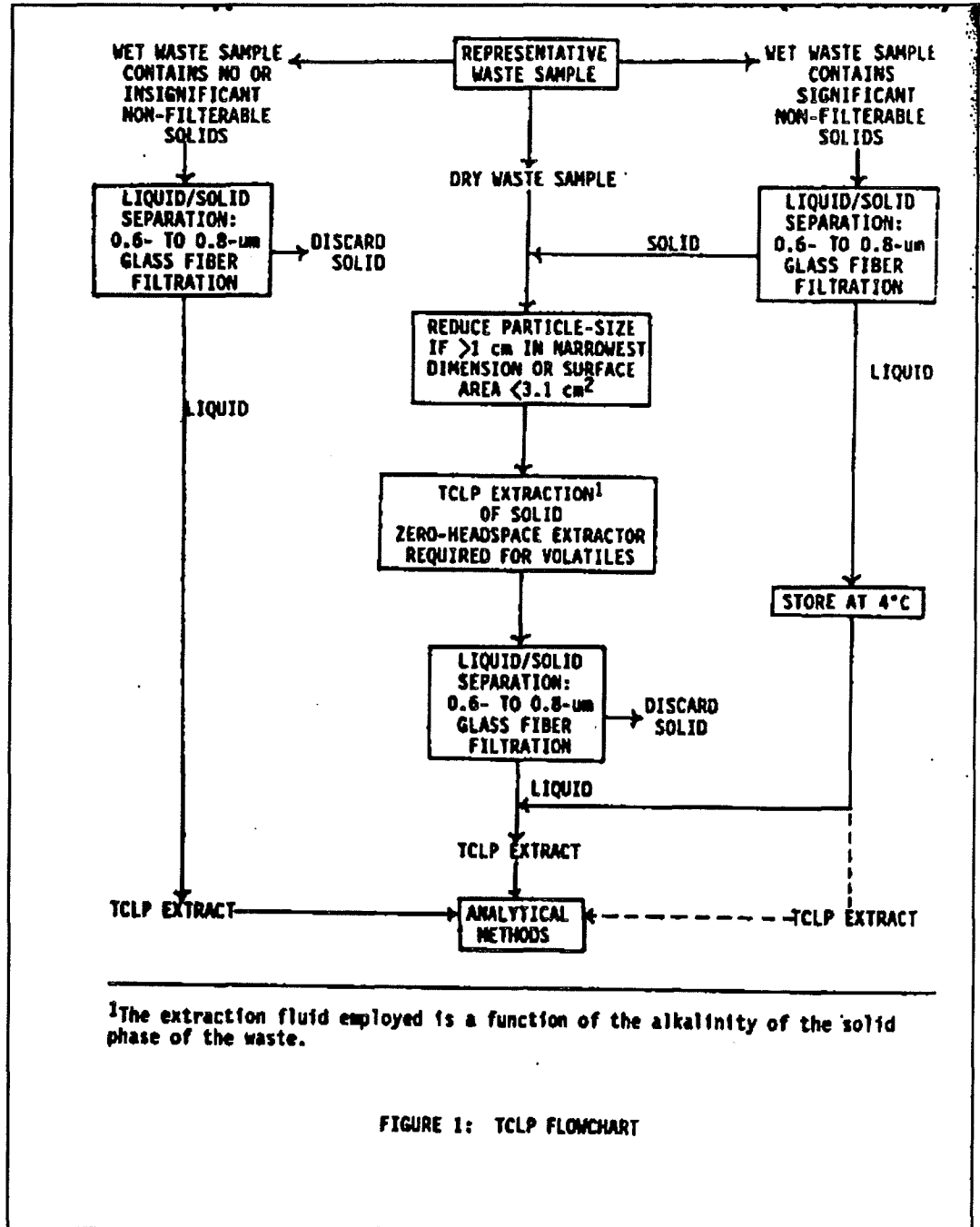


FIGURE 1: TCLP FLOWCHART

FIGURE 2 - ROTARY AGITATION

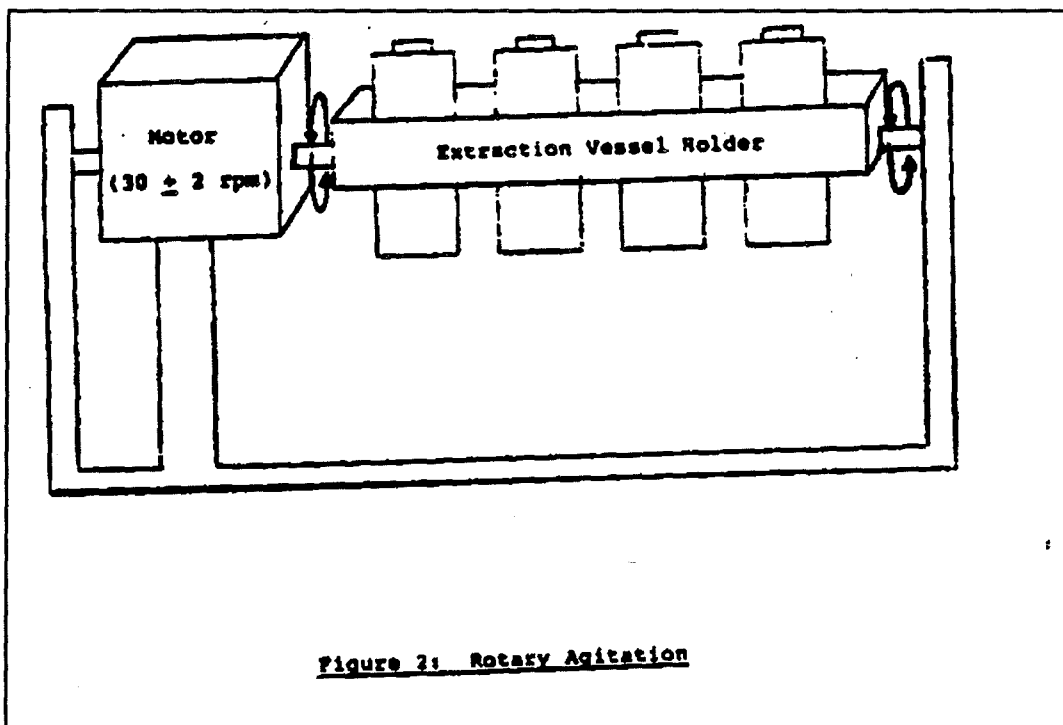


Figure 2: Rotary Agitation

FIGURE 3 - ZERO HEADSPACE EXTRACTION VESSEL

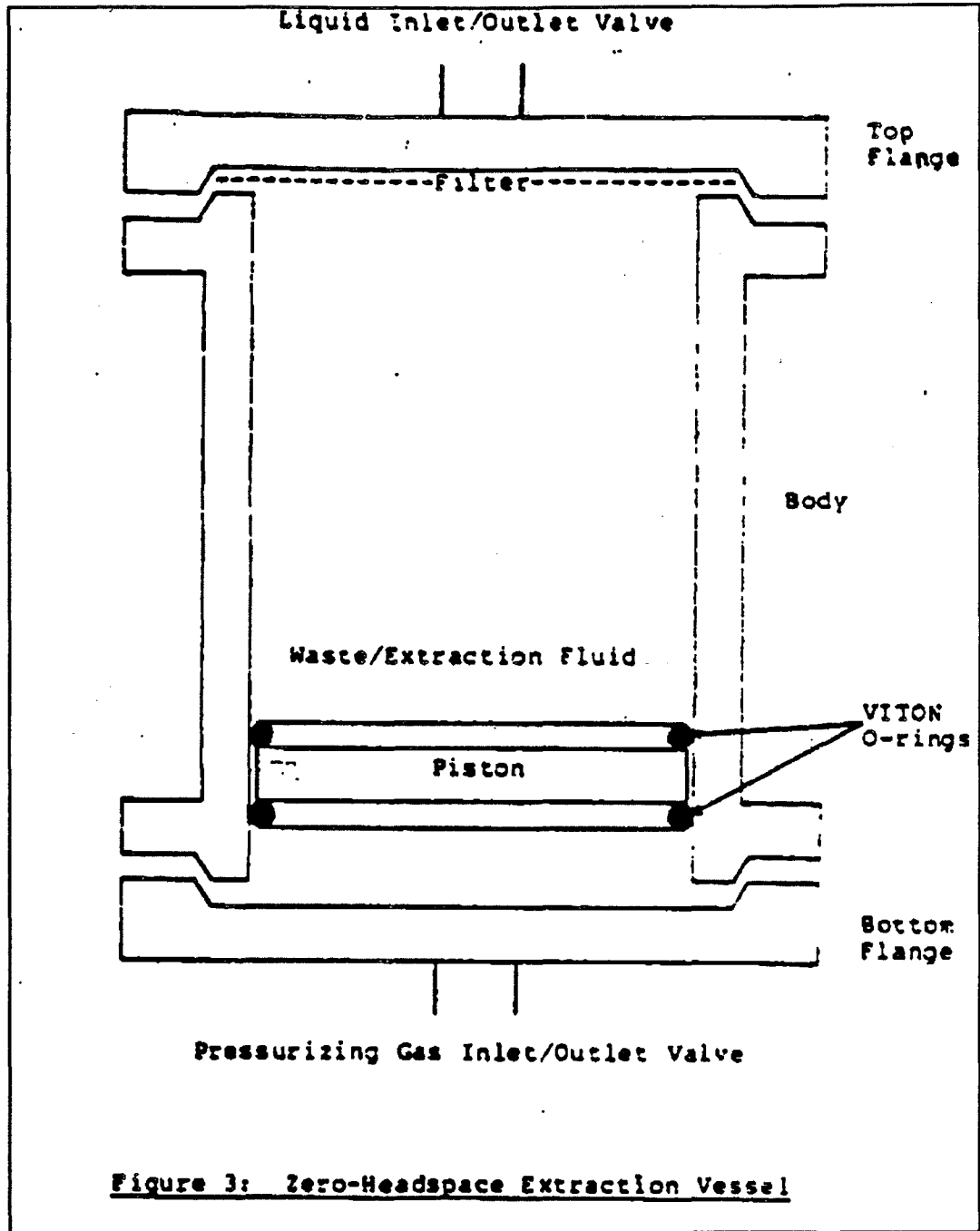


Figure 3: Zero-Headspace Extraction Vessel

APPENDIX II - TREATMENT STANDARDS (AS CONCENTRATION IN THE TREATMENT RESIDUAL EXTRACT)

[Note: The technologies shown are the basis of the treatment standards. They are not required to be used in meeting the treatment standards.]

Constituents of F001-F005 Spent Solvent Wastes	Waste Treatability Groups for F001-F005 Spent Solvent Wastes (mg/l)			All Other ³
	Wastewater	Technology Base ¹	Wastewater Generated by Pharmaceutical Plant ²	
Acetone	0.05	SS	0.59	
n-Butyl Alcohol	5.00	SS	5.00	
Carbon disulfide	1.05	SS	4.81	
Carbon tetrachloride	0.05	B	0.96	
Chlorobenzene	0.15	B&AC	0.05	
Cresols (cresylic acid)	2.82	AC	0.75	
Cyclohexanone	0.125	SS	0.75	
1,2-Dichlorobenzene	0.65	B&AC	0.125	
Ethyl acetate	0.05	SS	0.75	
Ethylbenzene	0.05	B	0.053	
Ethyl ether	0.05	SS	0.75	
Isobutanol	5.00	SS	5.00	
Methanol	0.25	SS	0.75	
Methylene chloride	0.20	B	12.7	0.96
Methyl ethyl ketone	0.05	SS	0.75	
Methyl isobutyl ketone	0.05	SS	0.33	
Nitrobenzene	0.66	SS&AC	0.125	
Pyridine	1.12	B&AC	0.33	
Tetrachloroethylene	0.079	B	0.05	
Toluene	1.12	B&AC	0.33	
1,1,1-Trichloroethane	1.05	SS	0.41	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.05	SS	0.96	
Trichloroethylene	0.062	B&AC	0.091	
Trichlorofluoromethane	0.05	B	0.96	
Xylene	0.05	AC	0.15	

¹ In some instances other technologies achieved somewhat lower treatment values but waste characterization data were insufficient to identify separate treatability groups. Refer to the BDAT background document for a detailed explanation of the determination of the treatment standards.

SS = steam stripping

B = biological treatment

AC = activated carbon

² Wastewaters generated by pharmaceutical plants shall be treated to the standards given for all other wastewaters except in the case of methylene chloride.

³ The treatment standards in this treatability group are based on incineration.

APPENDIX III - LIST OF HALOGENATED ORGANIC COMPOUNDS

In determining the concentration of HOCs in a hazardous waste for purposes of the California List land disposal prohibition, the following HOCs shall be included in the calculation as any compounds having a carbon-halogen bond which are listed in this Appendix. Appendix III consists of the following compounds:

Volatiles

Bromodichloromethane	1,1-Dichloroethylene
Bromomethane	Trans-1,2-Dichloroethene
Carbon Tetrachloride	1,2-Dichloropropane
Chlorobenzene	Trans-1,3-Dichloropropene
2-Chloro-1,3-butadiene	cis-1,3-Dichloropropene
Chlorodibromomethane	Iodomethane
Chloroethane	Methylene chloride
2-Chloroethyl vinyl ether	1,1,1,2-Tetrachloroethane
Chloroform	1,1,2,2-Tetrachloroethane
Chloromethane	Tetrachloroethene
3-Chloropropene	Tribromomethane
1,2-Dibromo-3-chloropropane	1,1,1-Trichloroethane
1,2-Dibromomethane	1,1,2-Trichloroethane
Dibromomethane	Trichloroethene
Trans-1,4-Dichloro-2-butene	Trichloromonofluoromethane
Dichlorodifluoromethane	1,2,3-Trichloropropane
1,1-Dichloroethane	Vinyl chloride
1,2-Dichloroethane	

Semivolatiles

Bis(2-chloroethoxy)ethane

Bis(2-chloroethyl)ether

Bis(2-chloroisopropyl) ether

p-Chloroaniline

Chlorobenzilate

p-Chloro-m-cresol

2-Chloronaphthalene

2-Chlorophenol

3-Chloropropionitrile

m-Dichlorobenzene

o-Dichlorobenzene

p-Dichlorobenzene

3,3'-Dichlorobenzidine

2,4-Dichlorophenol

2,6-Dichlorophenol

Hexachlorobenzene

Hexachlorobutadiene

Hexachlorocyclopentadiene

Hexachloroethane

Hexachloropropane

Hexachloropropene

4,4'-Methylenebis(2-chloroaniline)

Pentachlorobenzene

Pentachloroethane

Pentachloronitrobenzene

Pentachlorophenol

Pronamide

1,2,4,5-Tetrachlorobenzene

2,3,4,6-Tetrachlorophenol

1,2,4-Trichlorobenzene

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

Tris(2,3-dibromopropyl)phosphate

Organochlorine Pesticides

Aldrin

alpha-BHC

beta-BHC

delta-BHC

gamma-BHC

Chlordane

DDD

DDE

DDT

Dieldrin

Endosulfan I

Endosulfan II

Endrin

Endrin aldehyde

Heptachlor

Heptachlor epoxide

Isodrin

Kepone

Methoxychlor

Toxaphene

Phenoxyacetic Acid Herbicides

2,4-Dichlorophenoxyacetic acid

Silvex

2,4,5-T

PCBs

Aroclor 1016

Aroclor 1221

Aroclor 1232

Aroclor 1242

Aroclor 1248

Aroclor 1254

Aroclor 1260

PCBs not otherwise specified

Dioxins and Furans

Hexachlorodibenzo-p-dioxins

Hexachlorodibenzofuran

Pentachlorodibenzo-p-dioxins

Pentachlorodibenzofuran

Tetrachlorodibenzo-p-dioxins

Tetrachlorodibenzofuran

2,3,7,8-Tetrachlorodibenzo-p-dioxin

NR 680 - PLAN REVIEW AND LICENSING

page	section
1	NR 680.01 - Purpose
1	NR 680.02 - Applicability
1	NR 680.03 - Definitions
2	NR 680.04 - Alternative requirements
2	NR 680.05 - General report and plan submittal requirements
5	NR 680.06 - General feasibility report, plan of operation, and feasibility and plan of operation report requirements
18	NR 680.07 - Facility expansions and modifications of licenses and plan approvals
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24	NR 680.20 - Eligibility for an interim license
25	NR 680.21 - Application for an interim license
26	NR 680.22 - Interim license requirements
28	NR 680.23 - Operation while interim license is pending
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30	NR 680.30 - Eligibility for an operating license
30	NR 680.31 - Application and requirements for an operating license
31	NR 680.32 - Operating license issuance
31	NR 680.40 - Effect of a license
31	NR 680.41 - Signatories to license applications
32	NR 680.42 - Conditions applicable to all licenses
36	NR 680.43 - Revocation or denial of licenses
37	NR 680.44 - Transfer of licenses
38	NR 680.45 - License periods and fees
42	NR 680.50 - Variances
43	NR 680.51 - Research, development and demonstration licenses
44	NR 680.52 - Treatability study exemption
44	NR 680.60 - Termination of regulated activity

NR 680.01 PURPOSE. The purpose of this chapter is to ensure that environmentally acceptable hazardous waste management procedures are practiced in Wisconsin and to establish minimum standards for reports, plan submittals and the issuance of licenses and variances for facilities which recycle, treat, store or dispose of hazardous waste.

NR 680.02 APPLICABILITY. Except as otherwise provided, this chapter applies to recycling, storage, treatment or disposal facilities that manage hazardous waste. This chapter does not apply to solid waste facilities that manage only non-hazardous solid waste, metallic mining waste resulting from a mining operation as defined in s. 144.81(5), Stats., or polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157.

Note: The provisions of this chapter are consistent with, and in some instances identical to, federal regulations found in 40 CFR parts 124, 260 to 265 and 270, July 1, 1989.

NR 680.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 680.04 ALTERNATIVE REQUIREMENTS. (1) GENERAL. Exemptions from the requirements of chs. NR 600 to 685 may be granted under this section by the department for hazardous waste facilities in relation to location, engineering design and operations, except as otherwise provided in those chapters. A

person may apply for an exemption by providing the department with a written request and documentation justifying the need for an exemption. A person applying for an exemption has the burden of showing and documenting that the proposed alternative requirement provides the same level of control and protection as the requirements of s. NR 600.04 and chs. NR 630 to 685. Prior to granting an exemption, the department must find that the proposed alternative requirement does not pose an increased threat to human health or the environment, taking into consideration factors such as the quantity, composition and degree of hazard of the waste to be managed, any potential degradation of the environment and potential nuisance conditions. All exemptions pertaining to a hazardous waste facility shall be granted in writing by the department. Exemptions shall be reviewed periodically by the department regarding any potential nuisance, hazard to public health and safety, or potential degradation of the environment.

(2) **FEASIBILITY REPORTS AND FEASIBILITY AND PLAN OF OPERATION REPORTS.** Persons who wish to request an exemption at the time reports and plans for an operating license are submitted shall include the request in the applicant's feasibility report or feasibility and plan of operation report to allow the department to provide sufficient public notice as required by s. 144.44, Stats. Exemptions may only be granted in writing by the department in the final determination of feasibility.

(3) **CERTIFICATION.** Alternative requirements exemption requests shall meet the certification requirements of s. NR 680.05(1)(d).

NR 680.05 GENERAL REPORT AND PLAN SUBMITTAL REQUIREMENTS. (1) **GENERAL REQUIREMENTS.** Unless otherwise specified, all submittals for review and approval of any initial site report, feasibility report, feasibility and plan of operation report, plan of operation, construction observation report, closure plan, groundwater monitoring plan, alternative requirements exemption request, variance, plan modification, recycling exemption or a submittal providing information to demonstrate that a facility meets the locational requirements of s. NR 680.06(3)(i)4.b., c. and d. or, if appropriate, a request for an exemption from the requirements of s. NR 680.06(3)(i)4.b. according to s. NR 680.04, shall include the following:

(a) **Review fees.** The review fees specified in s. NR 680.45 in check or money order payable to the department, to be sent to the appropriate district or area office of the department.

(b) **Cover letter.** A letter detailing the desired department action or response. If applicable, this letter shall list each participating municipality and specify whether a copy has been submitted to it pursuant to s. NR 680.06(2).

(c) **Number of copies.** Five copies of the plan or report prepared pursuant to the appropriate rule. Two copies shall be submitted to the appropriate department district or area office and 3 copies shall be submitted to the department's bureau of solid and hazardous waste management. Review time starts when copies are received. The plans and reports and all methods and procedures used to prepare them shall conform to the following:

1. 'Certification'. All reports and all plan sheets shall be under the seal of and certified by a registered professional engineer, unless a written exemption is granted by the department. Reports where interpretation of geology or hydrogeology is necessary shall be signed by a hydrogeologist. Modifications and subsequent submittals shall also meet this certification requirement.

Note: Engineering certification may be demonstrated by using the following language;

"I, _____, hereby certify that I am a registered Professional Engineer in the State of Wisconsin in accordance with ch. A-E 4, Wis. Adm. Code and that this report has been prepared in accordance with the Rules Of Professional Conduct in ch. A-E 8, Wis. Adm. Code."

signature, title and P.E. number

P. E. Stamp

Note: Hydrogeologist certification may be demonstrated by using the following language;

"I, _____, hereby certify that I am a hydrogeologist as defined in s. NR 600.03(98), Wis. Adm. Code, and that to the best of my knowledge all information contained in this document is correct."

signature and title

2. 'Technical procedures'. All technical procedures used to investigate a hazardous waste facility shall be the current standard procedures as specified by the ASTM or the USGS, standard methods for the examination of water or wastewater, or other equivalent or appropriate methods approved by the department. Test procedures used shall be specified. Any deviation from a standard method shall be explained in detail, with reasons provided.

3. 'Required information'. The required technical information as specified in this chapter.

4. 'Visuals'. Maps, figures, photographs and tables, where applicable, to clarify information or conclusions. The visuals shall be legible. All maps, plan sheets, drawings, isometrics, cross-sections and aerial photographs shall meet the following requirements:

a. Be of appropriate scale to show all required details in sufficient clarity.

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

c. Use uniform scales as much as practical.

c. Contain a north arrow.

d. Use USGS data as basis for all elevations.

e. Plan sheets showing site construction, operation or closure topography shall also show original topography.

f. Plan sheets for hazardous waste facilities shall indicate a survey grid based on monuments established in the field specifically for that purpose.

g. Plan sheets shall be no smaller than 24 inches x 36 inches. All other documents shall be no larger than 24 inches x 36 inches and no smaller than 8 1/2 inches by 11 inches.

h. All cross-sections shall show survey grid location and be referenced to major plan sheets.

5. 'Table of contents'. A table of contents listing all sections of the submittal.

6. 'Appendix'. An appendix listing names of all references, all necessary data, procedures and calculations.

(2) SIGNATORIES TO REPORTS. All reports required by the department, other than manifests, shall be signed by a person described in this subsection or by a duly authorized representative as designated in par. d.:

(a) For a corporation, by a responsible corporate officer. For the purpose of this paragraph a responsible corporate officer means:

1. A president, secretary, treasurer or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

2. The manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million, in second-quarter 1980 dollars, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: The department does not require specific assignments or delegations of authority to responsible corporate officers identified in subd. 1. The department will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the department to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under subd. 2. rather than to specific individuals.

(b) For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

(c) For a government or public agency, by either a principal executive officer or ranking elected official. For the purposes of this paragraph, a principal executive officer of a federal agency includes:

1. The chief executive officer of the agency; or

2. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

(d) A person is a duly authorized representative if:

1. The authorization is made in writing by the person designated under par. (a) to (c);

2. The authorization specifies an individual or position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent or position of equivalent responsibility; and

3. The written authorization is submitted to the department.

(e) If an authorization under par. (d) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of par. (d) shall be submitted to the department prior to or together with any reports to be signed by an authorized representative.

(f) Any person signing a document under sub (2) shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted, is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

NR 680.06 GENERAL FEASIBILITY REPORT, PLAN OF OPERATION, AND FEASIBILITY AND PLAN OF OPERATION REPORT REQUIREMENTS. (1) **LOCAL APPROVALS.** An applicant proposing to obtain a final operating license for an interim licensed hazardous waste facility or construct a new hazardous waste facility or expand an existing facility shall submit a feasibility report or a feasibility and plan of operation report in accordance with this section and applicable portions of chs. NR 600 to 685. The owner or operator of a hazardous waste disposal facility shall submit a feasibility report followed by a plan of operation. All other hazardous waste treatment and storage facilities shall submit a feasibility and plan of operation report. An applicant shall submit a written request including the standard notice developed under s. 144.44(1m)(bn), Stats., to each affected municipality for the specification of all applicable local approval requirements under s. 144.44 (1m)(b), Stats. An applicant subject to s. 144.445, Stats., shall apply for all applicable local approvals specified by a municipality under s. 144.44 (1m)(b), Stats., at least 120 days prior to submitting the feasibility and plan of operation report to the department. If the municipality either fails to respond within 15 days after the receipt of the written request from the applicant or indicates that there are no applicable local approval requirements, the applicant may submit the feasibility report or feasibility and plan of operation report 135 days after receipt by the municipality of the written request from the applicant or 120 days after receipt of the response from the municipality indicating that there are no local approval requirements, whichever occurs first. The feasibility report or feasibility and plan of operation report shall contain documentation that this subsection has been complied with.

(2) **SUBMISSION OF REPORTS.** An applicant shall submit a feasibility report or feasibility and plan of operation report to the department in accordance with s. 144.44(2), Stats. At the same time the applicant shall submit a copy of the feasibility report or feasibility and plan of operation report to each participating municipality under s. 144.445(6)(b), Stats. The applicant shall notify the department of when and to whom the copies of the feasibility report or feasibility and plan of operation report were submitted.

(3) **GENERAL CONTENTS OF FEASIBILITY REPORT OR FEASIBILITY AND PLAN OF OPERATION REPORT.** Unless otherwise specified, the following information shall be included in any feasibility report or feasibility and plan of operation report, in addition to the information specified in subs. (4) and (5):

(a) A general description of the facility and a Part A of the application for an EPA hazardous waste permit, completed with the most recent information, as required in s. NR 680.21(1)(a).

(b) Chemical and physical analyses of the hazardous waste to be handled at the facility. At a minimum, these analyses shall contain all the information which must be known to treat, store or dispose of the wastes in accordance with chapters of NR 600 to 685.

(c) A copy of the waste analysis plan required by s. NR 630.13(1).

(d) A description of the security procedures and equipment required by s. NR 630.14 or a justification demonstrating the reasons for requesting a waiver of this requirement.

(e) A copy of the general inspection schedule required by s. NR 630.15(2).

(f) A description of procedures, structures or equipment used at the facility to:

1. Prevent hazards in unloading operations through the use of equipment such as ramps, special forklifts;

2. Prevent runoff from hazardous waste handling areas to other areas of the facility or environment, or to prevent flooding such as berms, dikes, trenches;

3. Prevent contamination of water supplies;

4. Mitigate effects of equipment failure and power outages; and
5. Prevent undue exposure of personnel to hazardous waste.

Note: An example of a method to prevent undue exposure of personnel is protective clothing.

(g) A description of precautions to prevent accidental ignition or reaction of ignitable, reactive or incompatible wastes as required to demonstrate compliance with s. NR 630.17 including documentation demonstrating compliance with s. NR 630.17(3).

(h) A description of vicinity and site traffic patterns, estimated volume and controls. If applicable, show turns across traffic lanes and stacking lanes, describe access road and bearing capacity and traffic control signals.

(i) Facility location information:

1. Owners and operators of all facilities shall identify whether the facility is located within a 100-year floodplain. This identification shall indicate the source of data for the determination and include a copy of the relevant federal insurance administration (FIA) flood map, if used, or the calculations and maps used where an FIA map is not available. Information shall also be provided identifying the 100-year flood level and any other special flooding factors, such as wave action, which shall be considered in designing, constructing, operating or maintaining the facility to withstand washout from a 100-year flood.

2. Owners and operators of facilities operating under an interim license, variance or waiver located in the 100-year floodplain shall prepare and provide to the department the following information:

a. Engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the site as consequence of a 100-year flood.

b. Structural or other engineering studies showing the design of operational units and flood protection devices such as floodwalls and dikes at the facility and how these will prevent washout.

c. If applicable, and in lieu of subpars. a. and b., a detailed description of procedures to be followed to remove hazardous waste to safety before the facility is flooded, including:

1) Timing of movement relative to flood levels, including estimated time to move the waste, to show that the movement can be completed before floodwaters reach the facility.

2) A description of the location to which the waste will be moved and demonstration that those facilities will be eligible to receive hazardous waste in accordance with the requirements of chs. NR 600 to 685.

3) The planned procedures, equipment, and personnel to be used and the means to ensure that resources will be available in time for use.

4) The potential for accidental discharges of the waste during movement.

3. Owners and operators of facilities operating under an interim license, variance or waiver and which are not in compliance with subd. 2. shall provide a plan and schedule demonstrating how the facility will come into compliance with the requirements of subd. 2.

4. Information to demonstrate that the facility meets the following locational requirements or, if appropriate, a request for an exemption from these requirements according to s. NR 680.04:

a. Except as provided in this paragraph for facilities operating under an interim license, a hazardous waste facility may not be located in a floodplain.

b. A hazardous waste facility may not be located in a wetland.

c. A hazardous waste facility may not be located in a habitat determined by the department to be critical to the continued existence of any endangered species listed in ch. NR 27.

d. The department may require that active portions of a facility be located up to 200 feet away from the property line of the facility.

(j) An outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the facility in a safe manner as required to demonstrate compliance with s. NR 630.16 and a brief description of how training will be designed to meet actual job tasks in accordance with requirements in s. NR 630.16(1)(b).

(k) For facilities or units where hazardous wastes were disposed of before the submittal of the feasibility report, a copy of the survey plat and record of the type, location and quantity of those wastes, and documentation that this was submitted to the register of deeds, as required by s. NR 685.06(8).

(l) An existing site condition topographic plan sheet which meets the requirements of s. NR 660.09(1)(b).

(4) FACILITY SPECIFIC REQUIREMENTS. Depending upon the facility type, the applicant shall also specifically address the following in the feasibility and plan of operation report:

(a) The feasibility and plan of operation report requirements of s. NR 640.06 in addition to the other requirements of ch. NR 640 for containers.

(b) The feasibility and plan of operation report requirements of s. NR 645.06 in addition to the other requirements of ch. NR 645 for tank systems.

(c) The feasibility and plan of operation report requirements of s. NR 655.06 in addition to the other requirements of ch. NR 655 for waste piles.

(d) The feasibility and plan of operation report requirements of s. NR 665.06 in addition to the other requirements of ch. NR 665 for incinerators.

(e) The feasibility and plan of operation report requirements of s. NR 670.06 in addition to the other requirements of ch. NR 670 for miscellaneous units.

(5) LANDFILL AND SURFACE IMPOUNDMENT REQUIREMENTS. (a) In addition to the requirements found in sub. (3), when siting a landfill or surface impoundment, the applicant shall also specifically address the location criteria requirements of s. NR 660.06, the initial site inspection requirements of s. NR 660.07, the initial site report requirements of s. NR 660.08, and the feasibility report requirements of s. NR 660.09. A separate plan of operation shall be prepared addressing the requirements of s. NR 660.10 in addition to the other landfill and surface impoundment requirements of ch. NR 660.

Note: A person applying for approval of a landfill or surface impoundment may submit the feasibility report and plan of operation at the same time, however, the department may not be able to review the plan of operation portion until after a favorable feasibility determination is made.

(b)1. Any feasibility report for a landfill or surface impoundment that stores, treats or disposes of hazardous waste shall include information on the potential for the public to be exposed to hazardous wastes

or hazardous constituents through releases related to the hazardous waste unit. At a minimum, this information shall address:

a. Reasonably foreseeable potential releases from both normal operations and accidents at the unit, including releases associated with transportation to or from the hazardous waste unit;

b. The potential pathways of human exposure to hazardous waste or constituents as a result of releases described under subpar. a.; and

c. The potential magnitude and nature of human exposure as a result of releases.

2. By [the effective date of these rules - revisor insert date], all owners or operators of a landfill or surface impoundment shall submit the information required in subd. 1.b. as supplemental information to their feasibility reports.

(6) ENVIRONMENTAL REVIEW. To aid the department in determining the need for an environmental impact report or environmental impact statement, the feasibility report or feasibility and plan of operation report shall include an environmental assessment section. This assessment shall address the following items:

(a) Project summary. A brief summary of the project shall be included. Particular attention shall be given the following areas:

1. The purpose and need for the proposed project including the history and background on the project.

2. A listing of the statutory authority and other relevant local, state and federal permits or approvals required as well as a discussion of the need for exemptions, zoning changes and any other special permits.

3. The estimated cost and funding source for the project.

(b) Proposed physical changes. A brief description of the proposed physical changes including:

1. The changes in terrestrial resources. This discussion shall cover the quantity of material to be excavated and the lateral extent of soil removal; the quantity and source of materials to be imported for construction of the liner, final cover system, drainage blanket and perimeter berms. Any other significant terrestrial modifications such as soil placement necessary to reach the proposed sub-base grades, construction of access roads, surface water drainage features and sedimentation controls shall also be outlined.

2. The changes in aquatic resources including the potential impacts to streams, wetlands, lakes and flowages. This discussion shall include discharge rates and volumes for groundwater control structures, leachate collection systems and surface water runoff under existing conditions as well as that anticipated during active operations and following closure.

3. Buildings, treatment units, roads and other structures to be constructed in conjunction with the facility. This discussion shall include the size of the facilities and the number of miles of road to be constructed.

4. Emissions and discharges such as dust, diesel exhaust, odors, gases, leachate, surface water runoff and collected groundwater associated with facility preparation, construction, operation, closure and following closure of the facility.

5. Other changes anticipated with facility development.

6. Maps, plans and other descriptive material to clarify the discussion such as a county map showing the general area of the project, a USGS topographic map, a plat map, zoning map, county wetlands map and a facility development plan.

(c) Existing environment. A brief description of the existing environment that may be affected shall be included. At a minimum this shall contain:

1. A description of the physical environment including the regional and local topography, geology, surface water drainage features, hydrogeologic conditions, air, wetlands and earth borrow sources as well as an evaluation of the groundwater quality data and overall performance of any existing solid or hazardous waste units.

2. The dominant aquatic and terrestrial plant and animal species and habitats found in the area including threatened or endangered species and amount, type and hydraulic value of wetlands.

3. Land use including dominant features and zoning in the area.

4. Social and economic conditions including any ethnic or cultural groups.

5. Other special resources such as archaeological, historical, state natural areas and prime agricultural lands.

(d) Environmental consequences. A brief discussion of the probable adverse and beneficial impacts including primary, indirect and secondary impacts shall include:

1. The physical impacts which would be associated with facility design, construction and operation, including visual impacts, if applicable.

2. The biological impacts including destruction and creation of habitat, alteration of the physical environment and any impacts to endangered or threatened species.

3. The impacts on land use.

4. The social and economic impacts to local residents and cultural groups and the communities and industries served by the facility.

5. Other special resources such as archaeological, historical, state natural areas and prime agricultural lands.

6. Probable adverse impacts that cannot be avoided including groundwater and surface water impacts, modifications of topography and any borrow source limitations on development around the facility, any loss of agricultural or forest land, displacement of wildlife and adverse aesthetic impacts for people in and around the facility.

(e) Alternatives. Identify, describe and discuss feasible alternatives including taking no action; enlargement, reduction or modification of the project; other facilities, locations or methods to the proposed action and their impacts. Particular attention shall be given to alternatives which might avoid some or all adverse environmental impacts, including proposed and existing hazardous waste treatment, storage or disposal, recycling and incineration facilities that may serve to handle the waste expected to be disposed of at the proposed facility, taking into account the economics of waste collection, transportation and disposal.

(7) **SMALL STORAGE FACILITIES.** Small storage facilities are exempt from the requirements of sub. (6) if they have the following characteristics:

(a) Hazardous waste storage is entirely in an enclosed and roofed structure having access limited or restricted to employees or other authorized personnel;

(b) Hazardous waste storage is confined to a floor area of 1500 sq. ft. or less;

(c) Hazardous waste storage does not exceed 10,000 gallons at any time;

(d) Hazardous waste is stored generally for the purpose of accumulating a sufficient quantity for a more economical transfer for treatment or disposal; and

(e) All hazardous waste is stored in either containers or above ground tanks.

(8) **NEEDS.** The feasibility report or feasibility and plan of operation report shall contain an evaluation to justify the need for the proposed facility in accordance with s. 144.44(2)(nm), Stats., unless the facility is exempt under s. 144.44(2)(nr), Stats.

(9) **COMPLETENESS.** (a) Within 60 days after a feasibility and plan of operation report for a storage or treatment facility is submitted, the department shall determine whether or not the report is complete. If the report is complete, the department shall publish a class I public notice in accordance with s. 144.44(2)(k), Stats., and issue a preliminary determination stating whether or not an environmental impact statement is required. If the report is incomplete, the department shall notify the applicant in writing and specify the information which must be submitted to complete the report. The department shall determine the completeness of the report by determining whether or not the minimum requirements of this chapter have been met. The department may require the applicant to submit additional information after determining that the report is complete if the department establishes that the feasibility of the facility cannot be determined without the additional information.

(b) For hazardous waste disposal facilities feasibility report and plan of operation completeness and decision making requirements found in subs. (11) and (12) apply in lieu of the requirements found in par. (a) and sub. (10).

(10) **ADDITIONAL FEASIBILITY AND PLAN OF OPERATION REPORT PUBLIC PARTICIPATION PROCEDURES.** This subsection applies to the feasibility and plan of operation report stage of the approval process under s. 144.44, Stats., for expansions of existing hazardous waste treatment or storage facilities under s. NR 680.07(1) and for new hazardous waste treatment or storage facilities.

(a) **Preliminary determination and notice.** 1. Immediately after determining that a complete feasibility and plan of operation report has been submitted and issuing a preliminary determination that an environmental impact statement is not required or, if it is required, immediately after the department issues the environmental impact statement, the department shall, at the same time it issues the notice required by s. 144.44(2)(k), Stats., issue its preliminary determination to approve, conditionally approve or disapprove the report. If the preliminary determination is to approve or conditionally approve a report for a new facility or an expansion or to disapprove a report for a new facility, it shall include but need not be limited to the information required to be contained in RCRA draft permits under 40 CFR 124.6(d) as of July 1, 1988.

2. If the preliminary determination is to approve or conditionally approve a report for a new facility or an expansion or to disapprove a report for a new facility, the notice required by s. 144.44(2)(k), Stats., shall also provide notice of the department's preliminary determination on the report and shall include the information required to be contained in RCRA notices under 40 CFR 124.10(d) as of July 1, 1988.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office

Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

3. In addition to distributing the notice to the persons specified under s. 144.44(4m), Stats., if the department proposes to approve or conditionally approve a report for a new facility or an expansion or to disapprove a report for a new facility, it shall also publish the notice by broadcast over local radio stations and it shall also distribute the notice by mailing a copy of it to the applicant, the U. S. environmental protection agency, the U. S. fish and wildlife service, the advisory council on historic preservation, other state agencies having any authority with respect to the construction or operation of the facility, and persons on a mailing list. The mailing list shall be developed by including those who request in writing to be on the list, by soliciting persons for "area lists" from participants in past approval proceedings in that area and by notifying the public of the opportunity to be put on the mailing list. In addition, the department may distribute the notice by any other method likely to give actual notice to persons potentially affected by it.

4. Notice of a preliminary determination to disapprove a report for an expansion need not be issued to anyone other than the persons specified in s. 144.44(4m), Stats.

5. Notice of a preliminary determination to approve or conditionally approve a report for a new facility or an expansion or to disapprove a report for a new facility shall invite the submission of written comments by any person within 45 days after the notice is published and shall describe the method by which an informational hearing under par. (c)3. may be requested by any person as well as describing the methods by which a hearing may be requested under s. 144.44(2)(l) and (m), Stats.

(b) Fact sheet. The department shall prepare a fact sheet that briefly sets forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing a proposed approval or conditional approval of a report for a new facility or an expansion or disapproval of a report for a new facility. The department shall send the fact sheet to the applicant and, on request, to any other person. The fact sheet shall include:

1. A brief description of the type of facility or activity which is the subject of the preliminary determination;

2. The type and quantity of wastes which are being or are proposed to be treated or stored;

3. A brief summary of the basis for the proposed conditions of approval including references to applicable statutory or administrative code provisions and appropriate supporting references to the administrative record required by par. (e);

4. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

5. A description of the procedures for reaching a final determination including:

a. The beginning and ending dates of the comment period under par. (a)5.,

b. The address where comments will be received,

c. Procedures for requesting a hearing and the nature of the hearing,

d. Any other procedures by which the public may participate in the final determination; and

6. The name and telephone number of a person to contact for additional information.

(c) Informational hearing. 1. Under s. 227.42(5), Stats., informational hearings under this paragraph are not contested cases. Hearings under this paragraph are held as part of the process for approving a feasibility report, plan of operation or license under s. 144.44 or 144.64, Stats., and are therefore exempt from s. 227.42(1), Stats.

2. The department shall hold an informational hearing whenever it finds, on the basis of requests, a significant degree of public interest in a preliminary determination to approve or conditionally approve a report for a new facility or an expansion or to disapprove a report for a new facility.

3. Unless the department holds an informational hearing under s. 144.44(2g), Stats., the department shall hold an informational hearing under this subdivision if during the 45 day written comment period the department receives written notice of opposition to the application and its proposed approval or conditional approval of a report for a new facility or an expansion or disapproval of a report for a new facility accompanied by a request for an informational hearing. Requests for a hearing shall be in writing and state the nature of the issues to be raised in the hearing. Hearings under this subdivision shall be held after at least 30 days notice but no sooner than 30 days after the issuance of the notice under par. (a) and no later than 45 days after the close of the written comment period. The hearing shall be held in the area where the facility is or is proposed to be located.

4. Notwithstanding s. NR 2.135, the conduct of hearings under this paragraph shall be governed by the procedures of this subdivision. At a hearing held under this paragraph, the presiding officer shall open the hearing and make a concise statement of its scope and purposes. Appearances may be entered on the record. Persons entering an appearance may make statements, present arguments or opinions, offer evidence and ask questions concerning the matter being heard, but the presiding officer may limit oral presentations if the hearing would be unduly lengthened by repetitious testimony. The presiding officer may continue the hearing on another date if it appears there will not be enough time for all who wish to speak. Statements may be submitted in oral or written form. Any person may submit a written statement within the time period allowed by the presiding officer. Statements need not be made under oath. The hearing shall be recorded by use of an electronic recording device. The recording is a public record under s. 19.35, Stats.

(d) Response to comments. The department shall issue a response to comments received during the written comment period and at any informational hearing. The department shall indicate any provisions in its preliminary determination that were changed in the final determination and the reason for the change and it shall briefly describe and respond to all significant comments.

(e) Administrative record; final determination to consider comments and response. 1. If a contested case hearing under s. 144.44(2r), Stats., is not held, the department's final determination shall be based on an administrative record which includes the feasibility and plan of operation report and any supporting data furnished by the applicant; the preliminary determination; the fact sheet; all documents cited in the fact sheet; other documents contained in the supporting file for the preliminary determination; the notice; all comments received during the written comment period and at any informational hearing; the department's response to comments; and any other information which the department considered.

2. If a contested case hearing under s. 144.44(2r), Stats., is held on a feasibility and plan of operation report, the department's determination shall consider all comments received during the written comment period and at any informational hearing, including an informational hearing held under par. (c)2. or 3., and shall consider the department's response to comments.

(11) FEASIBILITY REPORT PUBLIC PARTICIPATION PROCEDURES. This subsection applies to the feasibility report stage of the approval process under s. 144.44, Stats., for expansions of existing hazardous waste disposal facilities under s. NR 680.07(1) and for new hazardous waste disposal facilities.

(a) Preliminary determination and notice for feasibility reports. 1. Immediately after determining that a complete feasibility report has been submitted and issuing a preliminary determination that an environmental impact statement is not required or, if it is required, immediately after the department issues the environmental impact statement, the department shall issue the notice required by s. 144.44(2)(k), Stats.

2. The notice shall be published by the department as a class 1 notice under ch. 985, Stats., in the official newspaper designated under s. 985.04 or 985.05, Stats., or, if none exists in a newspaper likely to give notice in the area of the proposed facility.

3. Copies of the notice shall also be mailed to:

a. The clerk of each affected municipality.

b. The main public library in each affected municipality.

c. The applicant if the notice is not required to be distributed by the applicant.

4. The notice shall state that the feasibility report and environmental impact statement process are complete and shall invite the submission of written comments by any person within 45 days after the notice is published. The notice shall also describe the methods by which a hearing may be requested under pars. (c) and (d).

(b) Fact sheet. The department shall prepare a fact sheet that briefly sets forth the principal facts and the significant factual, legal, methodological and policy questions considered in a determination of feasibility. The department shall send the fact sheet to the applicant and, on request, to any other person. The fact sheet shall include:

1. A brief description of the type of facility or activity which is the subject of the proposed determination,

2. The type and quantity of wastes which are being or are proposed to be disposed of,

3. A brief summary of the basis for the proposed conditions of approval including references to applicable statutory or administrative code provisions and appropriate supporting references to the administrative record required by par. (i),

4. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

5. A description of the procedures for reaching a final determination including:

a. The beginning and ending dates of the comment period under par. (a)4.,

b. The address where comments will be received,

c. Procedures for requesting a hearing and the nature of the hearing,

d. Any other procedures by which the public may participate in the final determination; and

6. The name and telephone number of a person to contact for additional information.

(c) Request for an informational hearing. Within 45 days after the notice under par. (a) is published, any county, city, village or town, the applicant or any 6 or more persons may file a written request for an

informational hearing on the matter with the department. The request shall indicate the interests of the municipality or persons who file the request and state the reasons why the hearing is requested.

(d) Request for treatment as a contested case. Within 45 days after the notice under par. (a) is published, any county, city, village or town, the applicant or any 6 or more persons may request that the hearing under par. (c) be treated as a contested case, as provided under s. 227.42, Stats. A hearing may be treated as a contested case only if:

a. A substantial interest of the person requesting the treatment of the hearing as a contested case is injured in fact or threatened with injury by the department's action or inaction on the matter;

2. The injury to the person requesting the treatment of the hearing as a contested case is different in kind or degree from injury to the general public caused by the department's action or inaction on the matter; and

3. There is a dispute of material fact.

(e) Issuance of final determination of feasibility. If no hearing is conducted under par. (f) or (g), the department shall issue the final determination of feasibility within 60 days after the 45 day period under par. (d) has expired.

(f) Informational hearing. This paragraph applies if no request for the treatment of a hearing as a contested case is granted and if an informational hearing is requested under par. (c) within the 45 day period, or if no hearing is requested under par. (c) within the 45 day period but the department determines there is substantial public interest in holding a hearing.

1. The department shall conduct the informational hearing within 60 days after the expiration of the 45 day period under par. (c). The hearing shall be conducted in an appropriate place designated by the department in a county, city, village or town which would be substantially affected by the operation of the proposed facility.

2. The department shall issue a final determination of feasibility within 60 days after the informational hearing under this paragraph is adjourned.

(g) Hearing conducted as a contested case. This paragraph applies only if a person or party requests the treatment of the hearing as a contested case under par. (d) within the 45 day period and has a right to a hearing under that paragraph. Any denial of a request for treatment of the hearing as a contested case received within the 45 day period under par. (d) shall be in writing, shall state the reasons for denial and is an order reviewable under ch. 227, Stats. If the department does not enter an order granting or denying the request for the treatment of the hearing as a contested case within 20 days after the written request is filed, the request is deemed denied.

1. The division of hearings and appeals in the department of administration shall schedule the hearing to be held within 120 days after the expiration of the 45 day period under par. (d).

2. The final determination of feasibility shall be issued within 90 days after the hearing is adjourned.

3. If a contested case hearing is conducted under this paragraph, the secretary shall issue any decision concerning the determination of need, notwithstanding s. 227.46(2) to (4), Stats. The secretary shall direct the hearing examiner to certify the record of the contested case hearing to him or her without an intervening proposed decision. The secretary may assign responsibility for reviewing this record and making recommendations concerning the decision to any employee of the department.

(h) Response to comments. The department shall issue a response to comments received during the written comment period and at any informational hearing. The department shall indicate any provisions in its preliminary determination that were changed in the final determination and the reason for the change and the department shall briefly describe and respond to all significant comments.

(i) Determination based on administrative record. The department's final determination shall be based on an administrative record which includes the feasibility report and any supporting data furnished by the applicant; the preliminary determination; the fact sheet; all documents cited in the fact sheet; other documents contained in the supporting file for the preliminary determination; the notice; all comments received during the written comment period and at any informational hearing; the department's response to comments; and any other information which the department considered.

(12) **PLAN OF OPERATION APPROVAL AND PUBLIC PARTICIPATION PROCEDURES.** This subsection applies to the plan of operation stage of the approval process under s. 144.44 Stats., for expansions of existing hazardous waste disposal facilities under s. NR 680.07(1) and for new hazardous waste disposal facilities.

(a) Preliminary determination and notice. 1. Upon determining that a complete plan of operation has been submitted, the department shall issue its preliminary determination to approve, conditionally approve or disapprove the plan. If the preliminary determination is to approve or conditionally approve a plan for a new facility or an expansion or to disapprove a plan for a new facility it shall include but need not be limited to the information required to be contained in RCRA draft permits under 40 CFR 124.6(d) as of July 1, 1986.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

2. Upon issuing its preliminary determination, the department shall also issue notice of its preliminary determination.

3. If the preliminary determination is to approve or conditionally approve a plan for a new facility or an expansion or to disapprove a plan for a new facility the notice shall include but need not be limited to the information required to be contained in RCRA notices under 40 CFR 124.10(d) as of July 1, 1986.

4. Notice of a preliminary determination to approve or conditionally approve a plan for a new facility or an expansion or to disapprove a plan for a new facility shall be published by the department as a class I notice under ch. 985, Stats., in the official newspaper designated under s. 985.04 or 985.05, Stats., if one exists, in a major local newspaper of general circulation in the area of the facility and by broadcast over local radio stations and it shall distribute the notice by mailing a copy of it to the applicant, the U.S. environmental protection agency, the U.S. fish and wildlife service, the advisory council on historic preservation, other state agencies having any authority with respect to the construction or operation of this facility, the clerk of each affected municipality, the main public library in each affected municipality and persons on a mailing list, which shall be developed by including those who request in writing to be on the list, by soliciting persons for "area lists" from participants in past approval proceedings in that area and by notifying the public of the opportunity to be put on the mailing list. In addition, the department may distribute the notice by any other method likely to give actual notice to persons potentially affected by it.

5. Notice of a preliminary determination to disapprove a plan for an expansion need not be issued to anyone other than the applicant.

6. Notice of a preliminary determination to approve or conditionally approve a plan for a new facility or an expansion or to disapprove a plan for a new facility shall invite the submission of written comments by any person within 45 days after the notice is published and shall describe the method by which an informational hearing under par. (c)3. may be requested by any person.

(b) Fact sheet. The department shall prepare a fact sheet that briefly sets forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing a proposed approval or conditional approval of a plan for a new facility or an expansion and a disapproval of a plan for a new facility. The department shall send the fact sheet to the applicant and, on request, to any other person. The fact sheet shall include:

1. A brief description of the type of facility or activity which is the subject of the proposed determination;

2. The type and quantity of wastes which are being or are proposed to be disposed of;

3. A brief summary of the basis for the proposed conditions of approval including references to applicable statutory or administrative code provisions and appropriate supporting references to the administrative record required by par. (e);

4. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

5. A description of the procedures for reaching a final determination including:

a. The beginning and ending dates of the comment period under par. (a)6.;

b. The address where comments will be received;

c. Procedures for requesting a hearing and the nature of the hearing;

d. Any other procedures by which the public may participate in the final determination; and

6. The name and telephone number of a person to contact for additional information.

(c) Informational hearing. 1. Under s. 227.42(5), Stats., informational hearings under this paragraph are not contested cases. Hearings under this paragraph are held as part of the process for approving a feasibility report, plan of operation or license under s. 144.44 or 144.64, Stats., and are therefore exempt from s. 227.42(1), Stats.

2. The department shall hold an informational hearing whenever it finds, on the basis of requests, a significant degree of public interest in a preliminary determination to approve or conditionally approve a plan for a new facility or an expansion or to disapprove a plan for a new facility.

3. If, during the 45 day written comment period the department receives written notice of opposition to the application and its proposed approval or conditional approval of a plan for a new facility or an expansion or disapproval of a plan for a new facility accompanied by a request for an informational hearing, it shall hold an informational hearing on the preliminary determination. Requests for a hearing shall be in writing and state the nature of the issues to be raised in the hearing. Hearings under this subdivision shall be held after at least 30 days notice but no sooner than 30 days after the close of the written comment period. The hearing shall be held in the area where the facility is or is proposed to be located.

4. Notwithstanding s. NR 2.135, the conduct of hearings under this paragraph shall be governed by the procedures of this subdivision. At a hearing held under this paragraph, the presiding officer will open the hearing and make a concise statement of its scope and purposes. Appearances may be entered on the record. Persons entering an appearance may make statements, present arguments or opinions, offer evidence or ask questions concerning the matter being heard, but the presiding officer may limit oral presentations if the hearing would be unduly lengthened by repetitious testimony. The presiding officer may continue the hearing on another date if it appears there will not be enough time for all who wish to speak. Statements may be submitted in oral or written form. Any person may submit a written statement within the time period allowed by the presiding officer. Statements need not be under oath. The hearing shall be recorded by use of an electronic recording device. The recording is a public record under s. 19.35, Stats.

(d) Response to comments. The department shall issue a response to comments received during the written comment period and at any informational hearing. The department shall indicate any provisions in its preliminary determination that were changed in the final determination and the reason for the change and it shall briefly describe and respond to all significant comments.

(e) Determination based on administrative record. The department's final determination shall be based on an administrative record which includes the plan of operation and any supporting data furnished by the applicant; the preliminary determination; the fact sheet; all documents cited in the fact sheet; other documents contained in the supporting file for the preliminary determination; the notice; all comments received during the written comment period and at any informational hearing; the department's response to comments and any other information which the department considered.

(13) **TIMING OF RADIO ANNOUNCEMENT PRIOR TO ISSUANCE OF INITIAL OPERATING LICENSES.** The department shall arrange for the radio broadcast required by s. 144.44(4)(c)2., Stats., to be made at least 45 days prior to license issuance.

(14) **RESPONSE TO COMMENTS UPON ISSUANCE OF INITIAL OPERATING LICENSE.** The department shall issue a response to comments it receives following issuance of the notice of intent to issue an initial operating license under s. 144.44(4)(c), Stats.

NR 680.07 FACILITY EXPANSIONS AND MODIFICATION OF LICENSES AND PLAN APPROVALS.

Pursuant to s. NR 680.42(5) the department shall advise the owner or operator of an existing facility, in writing, of the receipt of and the department's findings on any request for a determination of whether a proposed change at a facility or in a license or plan of operation constitutes an expansion, major modification or minor modification. The department shall advise the owner or operator, in writing, of whether the request is complete within 65 business days after receiving it. The department shall advise the owner or operator of its determination within 65 business days after finding the request complete. Expansions of existing facilities under sub. (1) are subject to the public participation procedures of s. NR 680.06(10) for storage or treatment facilities or s. NR 680.06(11) and (12) for disposal facilities. Major modifications of licenses and plan approvals under sub. (2) and minor modifications of licenses and plan approvals under subs. (3) and (4) are subject to the procedures of sub.(5).

(1) **EXPANSIONS.** No person may expand a hazardous waste facility without first obtaining written approval of the necessary plans and reports required in s. NR 680.06. All changes which do not constitute expansion are modifications. Changes that are expansions include the following:

(a) Material and substantial alterations or additions to a facility or activity, including the addition of any new treatment, storage or disposal process or unit.

(b) Increases in the design capacity of any treatment, storage or disposal process or unit.

(c) Any addition of any new hazardous waste to the list of hazardous wastes that the facility is authorized by the department to manage. This change may not be considered an expansion if the department determines that the new waste to be managed is not substantially different than any of the wastes which the facility is already authorized to manage, and the addition of the new waste will not significantly affect the facility's operation any other way.

(d) Increases in the maximum inventory of waste specified in the facility's closure plan, if the increase causes an increase in the design capacity of any treatment, storage or disposal process or unit.

(e) Reconstruction. Reconstruction occurs when the capital investment in the changes to the facility exceeds 50% of the capital cost of a comparable entirely new hazardous waste facility.

(2) MAJOR MODIFICATIONS. Major modifications of licenses and plan approvals include only those changes for facilities with operating licenses which are made for the following reasons, but do not include changes which are also minor modifications under sub. (3):

(a) The owner or operator proposes to change the facility's operation in such a way so as to not constitute an expansion.

(b) The department determines that good cause exists for modification of a compliance schedule at the licensee's request, such as an act of God, strike, flood, or materials shortage or other events over which the licensee has little or no control and for which there is no reasonably available remedy.

(c) The department has established that one or more of the conditions in s. 144.44(3)(d), Stats., exists, necessitating a modification of the design or construction requirements of the facility's plan approval.

(d) The operational requirements on which the license, plan approval or interim license were based have been changed by statute through promulgation of amendments or revisions to chs. NR 600 to 685, or by judicial decision after the license, plan approval or interim license was issued.

(e) The department has received new information that was not available previously, such as information revealed in monitoring results, reports, plans, submittals, records and inspection results, if the cause specified in par. (f) also exists.

(f) The department determines that a modification is necessary in order for the licensee to meet the conditions of the facility's plan approval, the requirements of chs. NR 600 to 685, or any of the additional requirements specified in s. NR 680.42(5).

(g) Notwithstanding any other provisions of this chapter, when a plan submittal or license renewal application is received by the department in accordance with s. NR 680.45(8), the department shall condition the plan approval or operating license as necessary to ensure that the facility continues to comply with all applicable requirements of chs. NR 600 to 685.

(3) MINOR MODIFICATIONS FOR FACILITIES WITH OPERATING LICENSES. Minor modifications of licenses and plan approvals may be made only with the consent of the owner or operator if the change is for a facility which has an operating license issued under this chapter. If the owner or operator of a facility with an operating license does not consent to a plan approval or license change listed in this paragraph, the change shall be treated as a major modification under sub. (2). For facilities with operating licenses, minor modifications may only:

(a) Correct typographical errors,

(b) Require more frequent monitoring or reporting by the owner or operator,

(c) Change an interim compliance date in a schedule of compliance, if new date is not more than 120 days after the date specified in the existing license or plan approval and the change does not interfere with attainment of the final compliance date requirement,

(d) Allow for a change in ownership or operational control of a facility where the department determines that no other change in the license or plan approval is necessary, if a written agreement containing a specific date for transfer of license or plan approval responsibility, coverage and liability between the current and new owner or operator has been submitted to the department,

(e) Change the lists of facility emergency coordinators or equipment in the owner or operator's contingency plan,

(f) Change estimates of maximum inventory under s. NR 685.05(2)(c),

(g) Change estimates of expected year of closure or schedules for final closure under s. NR 685.05(3)(b),

(h) Approve periods longer than 90 days or 180 days under s. NR 685.05(6) and (7),

(i) Change the operating requirements in the license or plan approval for conducting a trial burn, if the change is not significant, or

(j) Change the ranges of the operating requirements in the license or plan approval to reflect the results of a trial burn, if the change is not significant,

(k) Grant one extension of the time period for determining operational readiness following completion of construction, for up to 720 hours operating time for treatment of hazardous waste.

(4) MINOR MODIFICATIONS FOR FACILITIES WITHOUT OPERATING LICENSES. Minor modifications of interim licenses and plan approvals may be made by the department if the change is for a facility which does not have an operating license issued under this chapter. For facilities without an operating license, minor modifications may authorize or require any change at the facility if the change is not an expansion under sub. (1).

(5) PROCEDURE. In addition to any procedures required or authorized by ss. 144.431(2)(a) and 144.44, Stats., for modification of licenses or plan approvals, the procedures of this subsection apply.

(a) Requests and time for department response. Licenses, including interim licenses, and plan approvals may be modified either at the request of any interested person, including the licensee, or upon the department's initiative. All requests shall be in writing and shall contain facts or reasons supporting the request. The department shall determine if a request is complete within 30 business days after receiving the request. The department shall review and approve, conditionally approve or deny a request and issue its final determination within 105 business days after receiving a complete request. The department shall advise, in writing, the requestor and the owner or operator if the owner or operator is a different person, of the receipt of the request and its determination on the request.

(b) Preliminary determination and notice. 1. Upon determining that a request is complete or upon initiating a modification, the department shall issue its preliminary determination on the modification. If the department initiates or proposes to approve or conditionally approve a major modification the preliminary determination shall include but need not be limited to the information required to be contained in RCRA draft permits under 40 CFR 124.6(d) as of July 1, 1988.

2. Upon issuing its preliminary determination on a modification, the department shall also issue a notice of its preliminary determination.

3. If the department initiates or proposes to approve or conditionally approve a major modification, the notice shall include but need not be limited to, the information required to be contained in RCRA notices under 40 CFR 124.10(d) as of July 1, 1988.

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

4. Notice of a preliminary determination to disapprove a request need not be issued to anyone other than the requestor and the owner or operator. If the department initiates or proposes to approve or conditionally approve a major modification, it shall publish a class I notice under ch. 985, Stats., in the official newspaper designated under s. 985.04 or 985.05, Stats., if one exists, in a major local newspaper of general circulation in the area of the facility and by broadcast over local radio stations and it shall distribute the notice by mailing a copy of it to the requestor, the owner or operator of the facility, the U. S. environmental protection agency, the U. S. fish and wildlife service, the advisory council on historic preservation, other state agencies having any authority with respect to the construction or operation of the facility, the clerk of each affected municipality, the main library in each affected municipality and persons on a mailing list which shall be developed by including those who request in writing to be on the list, by soliciting persons for "area lists" from participants in past approval proceedings in that area, and by notifying the public of the opportunity to be put on the mailing list. In addition, the department may distribute the notice by any other method likely to give actual notice to persons potentially affected by it.

5. If the department initiates or proposes to approve or conditionally approve a major modification, the notice shall invite the submission of written comments by any person within 45 days after the notice is published and shall describe the method by which an informational hearing under par. (d)3. may be requested by any person.

6. The department may disapprove major modifications and make minor modifications of licenses and plan approvals without inviting written comment or offering an opportunity for a public informational hearing. Notice of preliminary determinations on minor modifications and on disapprovals of major modifications shall be sent by first class mail to the owner or operator and the requestor.

(c) Fact sheet. The department shall prepare a fact sheet that briefly sets forth the principal facts and the significant factual, legal, methodological and policy questions considered in initiating or preparing the proposed approval or conditional approval of a major modification. The department shall send the fact sheet to the requestor, the owner or operator and, on request, to any other person. The fact sheet shall include:

1. A brief description of the type of facility or activity which is the subject of the preliminary determination;

2. The type and quantity of wastes which are being or are proposed to be treated, stored or disposed of;

3. A brief summary of the basis for the proposed conditions of approval including references to applicable statutory or administrative code provisions and appropriate supporting references to the administrative record required by par. (f);

4. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

5. A description of the procedures for reaching a final determination including the beginning and ending dates of the comment period under par. (b)5., the address where comments shall be received, procedures for requesting a hearing and the nature of the hearing, and any other procedures by which the public may participate in the final determination; and

6. The name and telephone number of a person to contact for additional information.

(d) Informational hearing. 1. Under s. 227.42(5), Stats., informational hearings under this paragraph are not contested cases. Hearings under this subdivision are held as part of the process for approving a feasibility report, plan of operation or license under s. 144.44 or 144.64, Stats., and are therefore exempt from s. 227.42(1), Stats.

2. The department shall hold an informational hearing whenever it finds, on the basis of requests, a significant degree of public interest in a proposed major modification of a license or plan approval.

3. If, during the 45 day written comment period the department receives written notice of opposition to a major modification initiated by the department or to a request for a major modification and its proposed approval or conditional approval accompanied by a request for an informational hearing, it shall hold an informational hearing on the proposed major modification of the license or plan approval. Requests for a hearing shall be in writing and state the nature of the issues to be raised in the hearing. Hearings under this subdivision shall be held after at least 30 days notice but no sooner than 30 days after the issuance of the notice under par. (b)2., and no later than 45 days after the close of the written comment period. The hearing shall be held in the area where the facility is located.

4. Notwithstanding s. NR 2.135, the conduct of hearings under this paragraph shall be governed by the procedures of this subdivision. At a hearing held under this paragraph, the presiding officer shall open the hearing and make a concise statement of its scope and purposes. Appearances may be entered on the record. Persons entering an appearance may make statements, present arguments or opinions, offer evidence or ask questions concerning the matter being heard, but the presiding officer may limit oral presentations if the hearing would be unduly lengthened by repetitious testimony. The presiding officer may continue the hearing on another date if it appears there will not be enough time for all who wish to speak. Statements may be submitted in oral or written form. Any person may submit a written statement within the time period allowed by the presiding officer. Statements need not be made under oath. The hearing shall be recorded by use of an electronic recording device. The recording is a public record under s. 19.35, Stats.

(e) Response to comments. The department shall issue a response to comments received during the written comment period and at any informational hearing. The department shall indicate any provisions in its preliminary determination that were changed in the final determination and the reason for the change and it shall briefly describe and respond to all significant comments.

(f) Determination based on administrative record. The department's final determination shall be based on an administrative record which includes the request and any supporting data furnished by the requestor; the preliminary determination; the fact sheet; all documents cited in the fact sheet; other documents contained in the supporting file for the preliminary determination; the notice; all comments received during the written comment period and at any informational hearing; the department's response to comments; and any other information which the department considered.

NR 680.08 CONSTRUCTION DOCUMENTATION. (1) The department may require a license applicant to submit a construction observation report under s. NR 680.05. Factors that the department will consider

before requiring the submission of a construction observation report include the types and quantities of hazardous wastes to be stored, treated, recycled or disposed of, the methods of storage, treatment, recycling or disposal and the potential for degradation of the environment and possible adverse human health effects should a discharge of hazardous waste occur.

(2) A registered professional engineer shall document facility construction and render an opinion whether the facility has been constructed in substantial conformity with the plan of operation. The department shall review, and approve, deny or deem incomplete the request for approval of facility construction documentation within 65 business days after receiving the request. Operation of the facility may not commence until the construction documentation report is approved by the department, and, if necessary, a license to operate the facility has been issued by the department.

NR 680.09 CONSTRUCTION INSPECTIONS. (1) **NEW LANDFILLS AND SURFACE IMPOUNDMENTS.** All new landfill and surface impoundment facilities and expansions of existing landfill and surface impoundment facilities for which the plan of operation was not approved prior to [the effective date of these rules - revisor insert date], shall be continuously inspected by a registered professional engineer employed by the department at all times critical construction is ongoing at the facility. Critical construction includes items such as liner and final cover placement, leachate collection system construction, leachate storage and transfer device construction, drainage material placement, gas collection and control device installation, clay borrow source excavation and any other construction items deemed appropriate by the department. In addition, the drilling of all borings, the installation and development of all wells and all infield hydraulic conductivity tests shall be inspected by a hydrogeologist employed by the department. The owner or operator shall pay inspection fees under sub. (3)(a).

(2) **OTHER FACILITIES.** The department may require as a condition of the approval of a feasibility and plan of operation report, groundwater monitoring plan, closure plan, closure and long term care plan or any report dealing with investigation or remedial actions at solid waste management units, or as a modification to any approval that critical construction steps be inspected by the department. The owner or operator shall pay the inspection fee under sub. (3)(b).

(3) **CONSTRUCTION INSPECTION FEES.** (a) The owner or operator of a facility subject to sub. (1) shall pay an inspection fee of \$50.00 per hour for each hour of time incurred by the department technical staff in conducting inspections and any associated work. Payment shall be made within 60 days of receipt of an itemized statement documenting the time spend and work performed.

(b) A construction inspection fee of \$500.00 per inspection required under sub. (2) shall be paid to the department by the owner or operator at the time a construction documentation report is submitted or as specified in the plan approval.

NR 680.10 RETENTION OF RECORDS. Any person who submits any report or plan under this chapter shall keep records of all data used to complete the report or plan and any supplemental information submitted for a period of at least 3 years from the date the report or plan is signed under s. NR 680.05(2), sealed under s. NR 680.05(1)(c)1., or submitted to the department, or for the duration of the time period in which the license, variance or approval is in force, whichever is longer.

NR 680.20 ELIGIBILITY FOR AN INTERIM LICENSE. (1) **GENERAL.** Any person who operates a hazardous waste facility which may be authorized by the department, under s. 144.64(2)(c), Stats., to receive hazardous waste pending the issuance of a hazardous waste facility operating license, and which was

in existence on November 19, 1980, or on a later date which is the original effective date of the statute or rule which first required the facility to obtain an operating license, may continue the regulated activity prior to the issuance of an operating license only if an interim license application was submitted to the department within 3 months after the original effective date of a statute or rule that first rendered the facility subject to the requirement to obtain an operating license.

(2) LATE APPLICATIONS. The department may, by granting a written exemption under par. (b), allow a person who did not terminate a regulated activity under s. NR 680.60 and did not complete, sign or submit an interim license application to the department by the date referred to in sub. (1) to complete, sign and submit an interim license application to the department after the date referred to in sub. (1), if:

(a) The facility for which the application is prepared was in existence on November 19, 1980; and

(b)1. The owner and operator of the facility for which the application is prepared have submitted, to the EPA, part A of the application for an EPA hazardous waste permit, as required under the resource conservation and recovery act and have qualified for interim status, or have been allowed to continue to operate by a compliance order issued by EPA under 42 USC 6928(a);

Note: The publication containing these regulations may be obtained from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The publications containing these regulations are available for inspection at the offices of the department, the secretary of state and revisor of statutes.

2. The facility for which the application is prepared is exempt from permitting or has a final permit under the resource conservation and recovery act; or

3. The requirements of s. NR 680.21(3) are met.

(3) Subsection (1) does not apply to any facility which has been previously denied a hazardous waste operating license or if authority to operate the facility under this chapter has been previously terminated.

NR 680.21 APPLICATION FOR AN INTERIM LICENSE. (1) An interim license application shall contain the following:

(a) Two current part A forms of the application for an EPA hazardous waste permit, as required under the resource conservation and recovery act, including all the required maps, drawings and photographs.

Note: The part A application form and instructions may be obtained from the department of natural resources district offices at no charge.

(b) Two copies of the facility's closure plan as required in s. NR 685.05 and the most recent closure cost estimate as required in s. NR 685.07(2), (3)(a) and (4)(a).

(c) Two copies of the facility's long-term care plan as required in s. NR 685.06 and the most recent long-term care cost estimate as required in s. NR 685.07(2).

(d) Two copies of the facility's contingency plan as required in ss. NR 630.21 and 630.22(1) and (2).

(e) The required fee as specified in s. NR 680.45.

(f) The department may require that the owner or operator submit copies of all available drawings, specifications, any prior plan approval letters, any applicable solid waste licenses and license applications, monitoring data, including groundwater monitoring, waste analysis, waste analysis plans and any other existing information which is necessary to complete the interim license application. The department shall request information in writing at the time the application is requested under s. NR 680.21, or after the application is received. The department shall specify a reasonable amount of time for the owner or operator to submit the information.

(g) The department may require that the interim license application include a description of how the facility meets the interim license requirements of s. NR 680.22. The department may also gather the necessary information to determine how the facility complies through an inspection.

(h) The application shall be submitted under the signature of the owner and operator as specified in s. NR 680.05(2).

(2) The department shall grant or deny any request for an exemption under s. NR 680.20(2) within 45 business days of receipt of a request. If the department denies the exemption request under s. NR 680.20(2), the owner or operator of the facility shall terminate the regulated activity in accordance with ss. NR 680.60 and 685.04. If the department grants the exemption under s. NR 680.20(2), the owner and operator of the exempted facility shall complete, sign and submit an interim license application to the department, in accordance with sub. (1), within 30 days after the owner or operator is notified that the exemption is granted, and the owner or operator of the exempted facility shall:

(a) Submit to the department proof of financial responsibility for closure, and if applicable, long-term care, as required by s. NR 685.07, within 60 days after the owner or operator is notified that the exemption is granted;

(b) Submit to the department a signed duplicate original of the hazardous waste facility liability endorsement or a certificate of liability insurance, for each insurance policy, as required by s. NR 685.08, within 180 days after the owner or operator is notified that the exemption is granted.

(3) Facilities which do not meet the conditions of s. NR 680.20(1) and (2) shall submit the reports and plans needed for the issuance of an operating license as specified in ss. NR 680.05 and 680.31 according to a compliance schedule established by the department as a condition of an interim license, if the interim license application submitted under s. NR 680.21 is approved.

(4) **PROOF OF FINANCIAL RESPONSIBILITY.** An owner or operator who submits an interim license application to the department shall submit to the department proof of financial responsibility for closure, and if applicable, long-term care, as required by s. NR 685.07.

(5) **LIABILITY INSURANCE.** An owner or operator who has submitted an interim license application to the department shall submit to the department a signed duplicate original of the hazardous waste facility liability endorsement or a certificate of liability insurance, for each insurance policy, as required by s. NR 685.08, or within the time periods specified in s. NR 660.19(4) for surface impoundments with discharges regulated under ch. 147, Stats.

NR 680.22 INTERIM LICENSE REQUIREMENTS. No person may operate or maintain a hazardous waste facility after an interim license application has been submitted to the department in accordance with s. NR 680.21, or after an interim license has been granted to the facility under s. NR 680.24, unless the facility

meets the requirements of this section which apply until an operating license under s. NR 680.32 is issued, where applicable to the type of hazardous waste management that takes place at the facility:

- (1) Environmental and health standards in s. NR 630.05.
- (2) Underground injection and land treatment requirements in s. NR 600.04.
- (3) Identification number requirements in s. NR 630.11.
- (4) Notice requirements in s. NR 630.10.
- (5) General waste analysis requirements in s. NR 630.12.
- (6) Waste analysis plan requirements in s. NR 630.13(1).
- (7) Open burning and detonation requirements in s. NR 630.20(1).
- (8) Generation and removal requirements in s. NR 630.20(4).
- (9) Closure of noncomplying portions requirement in s. NR 630.20(5).
- (10) General requirements for ignitable, reactive or incompatible wastes in s. NR 630.17 except s. NR 630.17(3).
- (11) General site selection requirements in s. NR 630.18.
- (12) Security requirements in s. NR 630.14.
- (13) Contingency plan requirements in ss. NR 630.21 and 630.22(1) and (2).
- (14) Personnel training requirements in s. NR 630.16.
- (15) Manifest, recordkeeping and reporting requirements in ss. NR 630.30, 630.31 and 630.40, except s. NR 630.31(1)(j).
- (16) General inspection requirements in s. NR 630.15.
- (17) Closure requirements in ss. NR 640.16(2), 645.17(1) and (2), 655.11(2), 660.15(3), 660.16(5), 660.19(14), 665.10, 670.09 and 685.05.
- (18) Long-term care requirements in ss. NR 660.17, 660.19(15) and 685.06.
- (19) Proof of financial responsibility for closure, and if applicable, long-term care requirements in s. NR 685.07, except as provided in s. NR 680.21(4).
- (20) Facility liability requirements in s. NR 685.08, except as provided in s. NR 680.21(5).
- (21) General storage standards in ss. NR 640.11(1), 640.12(1), 640.13(2) and (3), 640.15(2) and 640.16(2).
- (22) Tank storage and treatment standards in ch. NR 645.

Note: An interim license application that includes a request for a variance from the secondary containment requirements of s. NR 645.09 shall include the information required by s. NR 645.09(9) and the applicant shall follow the procedures required by s. NR 645.09(10).

(23) Container storage and treatment standards in ch. NR 640.

(24) Waste pile storage standards in ch. NR 655 except s. NR 655.05(2) and, notwithstanding this exception, s. NR 660.13(3).

(25) Landfill and surface impoundment operational requirements in ss. NR 660.12 and 660.13, except as provided under ch. 147, Stats. In addition, landfills and surface impoundments are not required to comply with s. NR 660.13(10), (27), (35) and (36) except landfills and surface impoundments shall comply with s. NR 660.13(10) for each new unit, replacement of an existing unit or lateral expansion of an existing unit.

(26) Landfill and surface impoundment closure requirements in ss. NR 660.15 and 660.16.

(27) Landfill and surface impoundment long-term care requirements in s. NR 660.17.

(28) Landfill and surface impoundment groundwater, leachate and other monitoring requirements in ch. NR 635. Pursuant to s. NR 600.07, the department may require the owner or operator of other hazardous waste facilities, including treatment and storage facilities, to comply with all or part of the requirements of ch. NR 635.

(29) Incinerator operational requirements in s. NR 665.09(3), (4), (5), (13)(b), (16), (17) and (11)(d).

(30) Treatment facility operational requirements in s. NR 640.06 and ss. NR 645.10 and 670.08. For the purpose of this section, these treatment facility operational requirements shall apply to incinerators.

(31) For surface impoundments with discharges regulated under ch. 147, Stats., surface impoundment operational requirements in s. NR 660.19(4), (10) and (11), except (11)(b). In addition, the facilities are not required to comply with s. NR 660.13(5) to (16) and (23) to (25).

NR 680.23 OPERATION WHILE INTERIM LICENSE IS PENDING. The timely submission of an interim license application to the department allows an existing hazardous waste facility to continue to operate until the applicant is advised that the interim license application has been approved or disapproved. The facility may not treat, store or dispose of hazardous waste not specified in the interim license application; employ processes not specified in the interim license application; or exceed the design capacities specified in the interim license application.

NR 680.24 ADVISEMENT OF INTERIM LICENSE. (1) The department shall advise the applicant of the receipt of a complete interim license application within 20 business days and shall notify the applicant that the application has been approved or disapproved within 130 business days of the date on which a complete application is received by the department.

(2) Advisement of the approval of an interim license application shall signify the beginning of the interim license period, and shall, unless the interim license is later revoked, allow an operator of an existing hazardous waste facility or operational unit within a facility to operate the facility until a final determination on the issuance of an operating license under s. NR 680.32 is made by the department. The owner or operator of a hazardous waste facility or operational unit within a facility shall terminate the regulated activity and close the facility or operational unit in accordance with ss. NR 680.60 and 685.04 if its interim

license application is disapproved, if its interim license is revoked prior to the issuance of an operating license under s. NR 680.32, if any of the reports or plans required under s. NR 680.21(3) or 680.22 are disapproved or an application for an operating license is denied. The department may issue an interim license for one or more operational units within a facility without affecting the license status of any other operational unit within that facility.

(3) The owner or operator of a hazardous waste disposal facility operating under an interim license shall pay to the department waste management fund fees under s. NR 685.09.

(4) Except as provided in s. NR 680.21(3), dates for the submission of reports and plans needed for the issuance of an operating license as specified in ss. NR 680.05 and 680.06 may be established by the department in a compliance schedule at any time during the interim license period. However, the department shall provide at least 6 months notice for the submission of all plans and reports required in the compliance schedule.

(5) The owner or operator of a hazardous waste facility operating under an interim license shall submit to the department a signed duplicate original of the hazardous waste facility liability endorsement or a certificate of liability insurance, for each insurance policy, as required by s. NR 685.08, by December 28, 1985, or within the time periods specified in s. NR 660.19(4) for surface impoundments with discharges regulated under ch. 147, Stats.

(6) Prior to approving an interim license application from an owner or operator of a storage or treatment tank system who is seeking a variance under s. NR 645.09(9) from secondary containment requirements, the department shall:

(a) Inform the public, through a newspaper notice, of the availability of the demonstration in support of a variance, as allowed by s. NR 645.09(9) and (10). The notice shall be placed in a daily or weekly major local newspaper of general circulation and shall provide at least 30 days from the date of the notice for the public to review and comment upon the demonstration in support of a variance. The department also may hold a public hearing, in response to a request or at its own discretion, whenever a hearing might clarify one or more issues concerning the demonstration in support of a variance. Notice of the hearing shall be given at least 30 days prior to the date of the hearing and may be given at the same time as the notice of the opportunity to review and comment upon the demonstration. These 2 notices may be combined.

(b) Approve or disapprove the request for a variance within 65 business days of receipt of the demonstration from the owner or operator and shall notify in writing the owner or operator and each person who submitted written comments or requested notice of the variance decision. If the demonstration for a variance is incomplete or does not include sufficient information, the 65 business day period begins when the department receives a complete demonstration, including all information necessary to make a final determination. If the public comment period in par. (a) is extended, the 65 business day period will be similarly extended.

(7) The owner or operator of a facility which has not obtained an interim license due to the withdrawal or denial of the interim license application or which no longer has an interim license or a variance and has not received a written determination from the department that closure was completed in accordance with ss. NR 680.60 and 685.04 shall either:

(a) Submit the signed duplicate original of the hazardous waste facility liability endorsement or the certificate of liability insurance, by December 28, 1985, or within the time periods specified in s. NR 660.19(4) for surface impoundments with discharges regulated under ch. 147, Stats.; or

(b) Apply for department authorization to cancel the liability insurance requirement in accordance with s. NR 685.08(4), if that closure has been completed in accordance with ss. NR 680.60 and 685.04 by December 28, 1985.

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NR 680.30 ELIGIBILITY FOR AN OPERATING LICENSE. For a new facility, the applicant may not commence treatment, storage or disposal of hazardous waste, and for a facility being modified or expanded the licensee may not treat, store or dispose of hazardous waste in the modified or expanded portion of the facility, until the licensee has received written approval from the department in the form of an operating license. Changes in the types of hazardous wastes handled or changes in the processes used to treat, store or dispose of hazardous wastes may constitute a facility modification or expansion. The owner or operator shall give prior written notice to the department of any plans to change facility operation so the department can determine whether a change constitutes a facility modification or expansion. The licensee may not treat, store or dispose of hazardous waste in any newly constructed, modified or expanded portion of a facility, if the department has determined that the construction requires submittal of a plan report and subsequent approval, until:

(1) The requirements of s. NR 680.31 are met for a newly constructed facility;

(2) The licensee has submitted to the department, by certified mail or hand delivery, a construction observation report signed by the licensee and sealed by a registered professional engineer, documenting that the construction is in compliance with the license and any department plan approval; and

(3)(a) The department has inspected the newly constructed, modified or expanded portion of the facility and finds it in compliance with the license and any department plan approval; or

(b) The department has notified the licensee in writing that the inspection requirement under sub. (1) is waived.

NR 680.31 APPLICATION AND REQUIREMENTS FOR AN OPERATING LICENSE. (1) The initial operating license for a facility or hazardous waste management unit within a facility may not be issued until all of the plans, reports and requirements of chs. NR 600 to 685 have been satisfied and approved by the department. Plans, reports and requirements include, but are not limited to, items such as initial site reports, feasibility reports, plans of operation, construction observation reports, closure and long-term care plans, contingency plans and emergency procedures, financial requirements for closure and long-term care and facility liability requirements. The department may issue an initial operating license for one or more operational units within a facility without affecting the license status of any other operational unit within that facility.

(2) An application for an operating license shall be submitted on forms available from by the department and shall be accompanied by the fee specified in s. NR 680.45.

Note: Application forms for licenses may be obtained from the Department of Natural Resources, Bureau of Solid and Hazardous Waste Management, 101 S. Webster St., P.O. Box 8094, Madison, Wisconsin 53708, at no charge.

(3) The license application shall be signed in accordance with s. NR 680.41.

NR 680.32 OPERATING LICENSE ISSUANCE. (1) The issuance of an operating license for a facility engaged in the treatment, storage or disposal of hazardous waste is regulated by ss. 144.44(4) and 144.64(2), Stats.

(2) The owner or operator of facility engaged in the treatment, storage or disposal of hazardous waste may not operate the facility prior to receiving a final license unless the facility is operating under an interim license, variance or waiver, or is exempt from licensing.

NR 680.40 EFFECT OF A LICENSE. (1) The issuance of a license does not authorize any injury to persons or private property, any invasion of other private rights, or any infringement of federal, state or local law.

(2) Compliance with a license during its term constitutes compliance with ss. 144.60 to 144.74, Stats., except for those requirements not included in the license which become effective by statute, or which are set out in chs. NR 600 to 699 restricting the placement of hazardous wastes in or on the land.

Note: A license may be revoked during its term or its renewal may be denied for any of the reasons set forth in s. NR 680.43(1) and (3). A license or a plan approval may be modified for cause, as set forth in s. NR 680.07(3).

NR 680.41 SIGNATORIES TO LICENSE APPLICATIONS. (1) All license applications including interim license applications, shall be signed as follows, by both the operator and the owner where a facility is operated by one person and owned by another:

(a) For a corporation, by a responsible corporate officer. For the purpose of this paragraph a responsible corporate officer means:

1. A president, secretary, treasurer or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or

2. The manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million, in second-quarter 1980 dollars, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: The department does not require specific assignments or delegations of authority to responsible corporate officers identified in par. (a)1. The department will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the department to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under par. (a)2. rather than to specific individuals.

(b) For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

(c) For a government or public agency, by either a principal executive officer or ranking elected official. For the purposes of this paragraph, a principal executive officer of a federal agency includes:

1. The chief executive officer of the agency; or

2. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

(2) Any person signing a document under sub. (1) shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted, is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

NR 680.42 CONDITIONS APPLICABLE TO ALL LICENSES. All of the conditions applicable to a license shall be incorporated into the license either expressly or by reference. The following conditions shall apply to all licenses, including interim licenses:

(1) The licensee shall comply with all conditions of the license, the provisions of ch. 144, Stats., the applicable requirements of chs. NR 600 to 685, any plan approval and modifications thereof and any special order and modifications thereof issued by the department, except as otherwise authorized by the department under ss. NR 680.50 and 680.51.

(2) If a licensee wishes to continue an activity regulated by a license after the expiration date of the license, the licensee shall apply for a new license. Section 227.51(2), Stats., provides: "When a licensee has made timely and sufficient application for the renewal of a license or a new license with reference to any activity of a continuing nature, the existing license does not expire until the application has been finally acted upon by the agency, and, if the application is denied or the terms of the new license are limited, until the last day for seeking review of the agency decision or a later date fixed by order of the reviewing court."

(3) It is not a defense for a licensee in an enforcement action that it would have been necessary to halt or reduce the licensed activity in order to maintain compliance with the conditions of the license.

(4) All renewal applications, and all reports or other information submitted to the department by the licensee shall be signed and certified as specified in s. NR 680.41.

(5) For a new facility, the licensee may not commence treatment, storage or disposal of hazardous waste, and for a facility being modified or expanded the licensee may not treat, store or dispose of hazardous waste in the modified or expanded portion of the facility, until the licensee has received written approval from the department. Changes in the types of hazardous wastes handled or changes in the processes used to treat, store or dispose of hazardous wastes may constitute a facility modification or expansion. The owner or operator shall give prior written notice to the department of any plans to change facility operation so the department can determine whether the change constitutes a facility modification or expansion. The licensee may not treat, store or dispose of hazardous waste in any newly constructed, modified or expanded portion of a facility, if the department has determined that the construction requires a plan or report submittal and subsequent approval, until:

(a) The requirements of s. NR 680.31 are met for a newly constructed facility;

(b) The licensee has submitted to the department, by certified mail or hand delivery, a construction observation report signed by the licensee and sealed by a registered professional engineer, documenting that the construction is in compliance with the license and any department plan approval; and

(c)1. The department has inspected the newly constructed, modified or expanded portion of the facility and finds it in compliance with the license and any department plan approval; or

2. The department has notified the licensee in writing that the inspection requirement under subd. 1. is waived.

(6) The licensee shall at all times maintain in good working order and operate efficiently all facilities and systems of treatment or control and related appurtenances which are installed or used by the licensee to achieve compliance with the terms and conditions of the license. Proper operation and maintenance includes, but is not limited to, effective performance based on designed facility removals, adequate funding, effective management, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.

(7) The licensee shall, upon the request of any officer or employe of the department, allow departmental personnel, at reasonable times and with notice no later than upon arrival, to:

(a) Enter the licensee's premises where a regulated facility or activity is located or conducted or where hazardous waste records are kept;

(b) Have access to, and copy at reasonable times, records or labels that are being kept;

(c) Inspect at reasonable times any facility's equipment, including monitoring equipment, or operations regulated under the license; and

(d) Sample or monitor any substance or parameters at any location where a regulated facility or activity is located or conducted, in compliance with the requirements of s. 144.69, Stats.

(8) The licensee shall report to the department any noncompliance which may endanger human health or the environment. The information which is required to be included in a written report under this subsection shall be provided orally to the appropriate district office of the department within 24 hours from the time the licensee becomes aware of the circumstances. A written report shall be submitted within 5 days of the time the licensee becomes aware of the circumstances. The department may allow the licensee up to 15 days to submit a written report if an extension is requested by the licensee. The written report shall contain:

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

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

(c) A description of the noncompliance and the period of noncompliance, including exact date and time, and if the noncompliance has not been corrected, the anticipated time the noncompliance is expected to continue.

(d) Name and quantity of material involved.

(e) The extent of injuries, if any.

(f) An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable, including information concerning the release of any substance which may cause contamination of a drinking water supply.

(g) Estimated quantity and disposition of recovered material that resulted from the incident.

(h) The known or suspected causes of the noncompliance and a statement describing the measures taken to investigate the noncompliance to determine its cause.

(i) Steps taken, or planned, to reduce or eliminate and prevent recurrence of the noncompliance.

(9) The licensee shall notify the division of emergency government and comply with the requirements of s. NR 630.22(2), s. 144.76, Stats., and ch. NR 158 if a discharge of hazardous waste or hazardous substance, or a fire or explosion occurs at the licensed facility.

(10) In the event of noncompliance with the license, the licensee shall take all necessary steps to minimize discharges to the environment, and shall take all necessary steps to minimize any adverse impacts on human health or the environment.

(11)(a) Monitoring results shall be reported at the intervals and format specified in the approved plan of operation or license and in accordance with s. NR 630.40.

(b) The licensee shall meet all requirements specified in the plan of operation or license concerning the proper use, maintenance and installation, when appropriate, of monitoring equipment or methods, including biological monitoring methods, when appropriate.

(c) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(d) The licensee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the license, records of all data used to complete the application for the license, and, except for facilities operating under an interim license, the waste minimization certification required by s. NR 630.31(1)(j), for a period of at least 3 years from the date of the sample, measurement, report, application or certification. This period may be extended by request of the department at any time. The licensee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the long-term care period as well.

(e) Records for monitoring information shall include;

1. The date, exact place and time of sampling or measurements;
2. The individuals who performed the sampling or measurements;
3. The dates analyses were performed;
4. The individuals who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of the analyses.

(f) The licensee shall report, at the time monitoring results are submitted, all instances of noncompliance not reported under sub. (8). Reports shall contain the information required in sub. (8)(a) to (i).

(12) Reports of compliance with, and any progress on, interim and final requirements contained in any compliance schedule under the license shall be submitted no later than 14 days following each schedule date.

(13) The licensee shall within a reasonable time furnish information to the department needed to determine whether cause exists to modify, suspend or revoke the license or to determine compliance with the license. The licensee shall also furnish to the department, upon request, copies of records required by the license.

(14) The license does not convey any property rights of any sort, or any exclusive privilege.

(15) The following reports shall be submitted to the department:

(a) Manifest discrepancy report. If a significant discrepancy in a manifest as explained in s. NR 630.30(6) is discovered, the licensee shall attempt to reconcile the discrepancy. If not resolved within 15 days, the licensee shall submit a report, including a copy of the manifest, to the department as required by s. NR 630.30(6).

(b) Unmanifested waste report. An unmanifested waste report shall be submitted to the department within 15 days of receipt of unmanifested waste as required by s. NR 630.40(2).

(c) Annual report. An annual report shall be submitted covering facility activities during the previous calendar year as specified in s. NR 630.40(1).

(d) Additional reports. Additional reports as specified in s. NR 630.40(3) shall be submitted if necessary.

(16) The licensee shall submit required documentation and take any action necessary to ensure protection of human health and the environment. The department may require documentation or action after inspecting the facility or reviewing any submittals, reports or plans.

(17) The license may be modified, suspended or revoked for the reasons outlined in ss. NR 680.43 and 680.45. The submittal of a request by the licensee for license modification, suspension or revocation or a notification of planned changes or anticipated noncompliance, does not stay the effectiveness of any license condition.

(18) Where the licensee becomes aware that there was a failure to submit relevant facts in any reports, plans or other information submittal, or that incorrect information was submitted, the licensee shall promptly submit the facts or information to the department.

(19) In addition to the conditions required for all licenses, the department may establish conditions, as required on a case-by-case basis, to ensure compliance with chs. NR 600 to 685.

NR 680.43 REVOCATION OR DENIAL OF LICENSES. (1) A hazardous waste facility operating license may be revoked during its term, or its renewal may be denied, for any one of the following reasons:

(a) Failure of the licensee to pay the waste management fees specified in s. NR 685.09 or the license fees specified in s. NR 680.45.

(b) Failure to operate the facility in accordance with the facility's approved plan of operation.

(c) Failure to comply with chs. NR 600 to 685.

(d) Failure to disclose fully all relevant facts in a feasibility report, plan of operation or license application or in a review of a feasibility report, plan of operation or license.

(e) Misrepresentation of any relevant fact at any time.

(f) Operation of the facility in a way that endangers human health or the environment to the extent that revocation of the license is the only way to provide an acceptable level of protection.

(2) An interim license may be revoked during its term for any of the following reasons:

(a) Failure to comply with the applicable interim license requirements set forth in s. NR 680.22.

(b) Failure to submit complete plans or reports required by a compliance schedule within 14 days following the date on which they are due under the schedule.

(c) Failure to pay the waste management fund fees specified in s. NR 685.09.

(d) Failure to disclose fully all relevant facts in a feasibility report, plan of operation or license application or in a review of a feasibility report, plan of operation or license.

(e) Misrepresentation of any relevant fact at any time.

(f) Operation of the facility in a way that endangers human health or the environment to the extent that revocation of the license is the only way to provide an acceptable level of protection.

(3) An interim license for a land disposal facility is revoked and authority to operate a hazardous waste facility under it terminates 12 months after the date on which the facility first becomes subject to the requirement to have a hazardous waste operating license unless the owner or operator:

(a) Submits a feasibility report and plan of operation for a hazardous waste operating license for the facility; and

(b) Certifies that the facility is in compliance with all applicable groundwater monitoring and financial responsibility requirements.

(4) An interim license is revoked and authority to operate a hazardous waste facility under it terminates for any facility other than incineration and land disposal on November 8, 1992, unless the owner or operator of the facility has submitted a feasibility report and plan of operation or a feasibility and plan of operation report for a hazardous waste operating license for the facility by November 8, 1988.

(5) Any person who owns or operates a hazardous waste facility which has had its operating license or interim license denied or revoked under subs. (1), (2), (3) or (4) shall close the facility in accordance with ss. NR 680.60 and 685.04.

(6) The department may deny or revoke a license, including an interim license for one or more operational units within a facility, without affecting the license status of other operational units.

(7) The department shall review each license, other than interim licenses, every 2 years to determine whether the license shall be revoked for one or more of the reasons listed in sub. (1).

NR 680.44 TRANSFER OF LICENSES. (1) Whenever rights of ownership, possession or operation in a licensed hazardous waste facility, including facilities with interim licenses, are transferred, licensing shall be in accordance with s. 144.444, Stats.

(a) Written documentation of the acquisition of rights and a written agreement containing a specific date of transfer of responsibility shall be submitted to the department by the new owner or operator. Prior to the transfer of a license, including an interim license, the new owner or operator shall submit 2 revised part A forms in accordance with s. NR 680.21(1)(a) and the required notifications to comply with s. NR 600.05, within 90 days prior to the scheduled transfer of responsibility.

(b) For facilities with operating licenses, the new owner or operator shall submit an application for an operating license within 90 days prior to scheduled transfer of responsibility, on a form available from the department.

(2) Transfer of responsibility requests shall be submitted to the department by the licensee as a request to modify a license or plan approval under s. NR 680.07(5)(a). The previous owner shall be responsible for compliance with the closure, long-term care, financial responsibility and liability coverage requirements for the facility specified in s. NR 600.05 and chs. NR 630 to 685, including ss. NR 685.05, 685.06, 685.07 and 685.08, until the person acquiring the rights of ownership, possession or operation has demonstrated compliance with the closure, long-term care, financial responsibility and liability requirements for the facility specified in s. NR 600.05 and chs. NR 630 to 685, including ss. NR 685.05, 685.06, 685.07 and 685.08, to the department, and the department notifies the previous owner, in writing, that an adequate demonstration has been made.

(3) The person acquiring the rights of ownership, possession or operation shall demonstrate to the department compliance with the closure, long-term care, financial responsibility and liability coverage requirements in s. NR 600.05 and chs. NR 630 to 685, including ss. NR 685.05, 685.06, 685.07 and 685.08 within 6 months after the transfer of responsibility. The previous owner shall continue to be responsible for compliance with the closure, long-term care, financial responsibility and liability coverage requirements in s. NR 600.05 and chs. NR 630 to 685, including ss. NR 685.05, 685.06, 685.07 and 685.08, if the person acquiring the rights of ownership, possession or operation fails to demonstrate compliance with those requirements.

NR 680.45 LICENSE PERIODS AND FEES. (1) FEES. (a) The plan review fee or license fee specified in Tables XII or XIII shall accompany all license applications, plans, reports and other documents submitted to the department for approval. Plan review fees and license fees are not transferable, proratable or refundable.

(b) Applicants who fail to submit an application for renewal of an operating license by the deadline specified on the application form shall pay a late processing fee of \$150.00 in addition to the renewal fee.

(2) LICENSE DURATION. (a) Except as provided in par. (b), initial operating licenses and transportation service licenses are valid from October 1 or the date of issuance, whichever is later, until September 30, and operating licenses are valid from October 1 until September 30.

(b) The department may deny, suspend or revoke an operating license, including an initial operating license, under s. NR 680.23 or s. 144.64(2)(e), Stats., and may deny, suspend or revoke a transportation service license under s. NR 620.15(4) or s. 144.64(1)(c), Stats.

(3) APPLICATIONS FOR RENEWAL. The owner or operator of a storage, treatment or disposal facility shall submit an application to the department for renewal of the operating license by June 1 preceding the license period being applied for. Applications for initial operating licenses and for renewal of operating licenses shall be submitted to the department on forms available from the department.

(4) ACTION ON APPLICATIONS (a) The department shall review and approve or deny an application for renewal of an operating license within 90 days after receiving the request or by the date of expiration of the current license; whichever occurs later.

(5) CLOSURE AND LONG TERM CARE LICENSE REQUIRED. The owner or operator or any successor in interest shall have a license during the closure and long-term care period in accordance with s. 144.441, Stats. The license fees are specified in Tables XII or XIII.

(6) EFFECTIVE PERIOD. Except as provided in subs. (7) and (8), plan approvals and licenses shall be effective for purposes of annual license renewal, for a fixed period of up to 10 years from the date of the initial operating license issuance. If the licensee chooses to operate or maintain a hazardous waste facility after the effective period ends, then the licensee shall submit, at least 180 days before the end of the effective period, all of the plans and reports which are required before an application for a new operating

license may be submitted, as specified in ss. NR 680.31(1) and s. NR 600.05 and the applicable chapters of chs. NR 600 to 685.

(b) The department may modify a license to change the date that the necessary reports are due under ss. NR 680.07(2) and (3).

(c) The department may issue a plan approval or license with an effective period that is less than the 10 year maximum effective period specified in sub. (6).

(7) EXTENSION OF EFFECTIVE PERIOD OF LICENSE. (a) The department may modify a license to extend its effective period if the licensee has submitted, in a timely and complete manner, all of the reports and plans specified in sub. (6). The terms and conditions of the license shall remain in force during the extension period.

(8) PERIODIC REVIEW. Each plan approval for a land disposal facility shall be reviewed by the department 5 years after issuance of the initial operating license and at 5 year intervals thereafter while the facility remains licensed. The plan approval and license may be modified as necessary under s. NR 680.07.

TABLE XII

FEE SCHEDULE - ALL FACILITIES EXCEPT LANDFILLS AND SURFACE IMPOUNDMENTS

Plan Review Fees (1)(2)

License Fees (3)(8)

ID#	Facility Type	License Required	Plan Review Required	Plan Review Fees (1)(2)									License Fees (3)(8)			
				Interim License Report	Variance Report	Feasibility and Plan of Operation (5)	Const Rpt. Inspect	Site Const Doc	Closure Plan (6)	Major Plan Mod. (4)	Minor Plan Mod. (4)	Corr. Action (7)	Commercial Fac. (10) Variance and Final License	Commercial Fac. (10) Interim License (9)	Non-Commercial Fac. (11) Variance and Final License	Non-Commercial Fac. (11) Interim License (9)
20	Transporters	Yes	No										250		250	
25	Recycling	No	Yes								1000					
40	Container	Yes	Yes	500	1000	2500	500	250	1000	1000	250	1000	2000	4000	500	1000
45	Tanks	Yes	Yes	500	1000	4000	500	500	1500	1000	250	1000	2000	4000	500	1000
55	Waste Piles	Yes	Yes	500	1000	4000	500	500	2000	1500	250	1000	3000	6000	1500	3000
65	Incinerators	Yes	Yes	500	2500	12,500	500	1000	2000	2000	250	1000	4000	8000	2000	4000
70	Miscellaneous	Yes	Yes	500	1000	2500	500	250	1000	1000	250	1000	2000	4000	500	1000

- (1) In accordance with s. NR 680.05, all reports and plan sheets shall be made under the seal of a registered professional engineer. Reports where interpretation of geology or hydrogeology is necessary shall be signed by a hydrogeologist.
- (2) The plan review fees specified in Table XII cover the department's review from initial submittal through approval or denial of a report or plan. An applicant may revise or supplement a report or plan deemed incomplete and resubmit it without paying an additional review fee. The applicant shall pay a plan review fee as specified in Table XII for resubmittal of a plan which has been previously denied or withdrawn after having been determined to be complete. The department may waive any plan review fee if it determines that the total review time is not likely to exceed 4 hours.
- (3) A facility must have a separate license for each hazardous waste management activity it conducts. Final licenses and variances must be renewed annually.
- (4) A plan modification, as referred to in Table XII, is a submittal which proposes to modify a license, variance, or plan previously approved by the department.
- (5) Certain small storage facilities may not be required to submit a feasibility and plan of operation report in accordance with s. NR 640.07.
- (6) Applicants submitting a closure plan as part of a plan of operation or a feasibility and plan of operation report may not be required to pay the closure plan review fee.
- (7) The owner or operator of the facility shall pay a total of \$1,000 plan review fee for each phase of the corrective action program. The phases are facility investigation; selection of alternatives; and remedial design and operation.
- (8) Any facility which cannot clean close will be required to obtain a closure and long-term care license and will be required to pay a \$5,000 Closure and Long-Term Care License Fee. This is a one-time only fee to cover the entire 30-year long-term care period. Transportation services and recycling facilities are exempt from this requirement.
- (9) This fee is a one-time only payment to cover the interim license period until a final determination on the issuance of an operating license is made by the department.
- (10) A commercial facility has the definition in s. NR 600.03(37).
- (11) A non-commercial facility has the definition in s. NR 600.03(144).

**TABLE XIII
FEE SCHEDULE - LANDFILLS AND SURFACE IMPOUNDMENTS**

M DE	Facility Type	License Req'd	Plan Review Req'd	Plan Review Fees (1)(2)									License Fees (3)			
				Interim License Report	Initial Site Report	Feas. Report	Plan of Operation Report	Const Inspect	Site Const Doc	Closure Plan (5)	Major Plan Mod. (4)	Minor Plan Mod. (4)	Corr. Action (7)	Final License	Interim License (9)	Closure and Long-Term Care License (8)
0	Commercial Landfills & Surf Imp(10)	Yes	Yes	1,000	10,000	75,000	25,000	(6)	2,500	15,000	2,500	500	5,000	25,000	50,000	50,000
0	Non-Commercial Landfills & Surf Imp(11)	Yes	Yes	500	3,000	20,000	7,000	(6)	1,000	5,000	1,500	150	1,000	7,000	14,000	20,000

-) In accordance with s. NR 680.05, all reports and plan sheets shall be made under the seal of a registered professional engineer. Reports where interpretation of geology or hydrogeology is necessary shall be signed by a hydrogeologist.
-) The plan review fees specified in Table XIII cover the department's review from initial submittal through approval or denial of a report or plan. An applicant may revise or supplement a report or plan deemed incomplete and resubmit it without paying an additional review fee. The applicant shall pay a plan review fee as specified in Table XIII for resubmittal of a plan which has been previously denied or withdrawn after having been determined to be complete. The department may waive any plan review fee if it determines that the total review time is not likely to exceed 4 hours.
-) A facility must have a separate license for each hazardous waste management activity it conducts. Final licenses must be renewed annually.
-) A plan modification, as referred to in Table XIII, is a submittal which proposes to modify a license, variance, or plan previously approved by the department.
-) Applicants submitting a closure plan with a feasibility and plan of operation report may not be required to pay the closure plan review fee.
-) The owner or operator shall pay a construction inspection fee as required by s. NR 680.09.
-) The owner or operator of the facility shall pay a total of \$5000 plan review fee for each phase of the corrective action program. The phases are facility investigation; selection of alternatives; and remedial design and operation.
-) Facilities which clean close are not required to obtain a closure and long-term care license. This is a one-time only fee to cover the entire 30-year long-term care period. All facilities subject to this requirement must pay this one-time fee even if they previously obtained a long-term care license.
-) This fee is a one-time only payment to cover the interim license period until a final determination on the issuance of an operating license is made by the Department.
-) A commercial facility has the definition in s. NR 600.03(37).
-) A non-commercial facility has the definition in s. NR 600.03(144).

NR 680.50 VARIANCES. The department may issue a variance from the requirements of chs. NR 600 to 699 and s. 144.64, Stats., if the application for, or compliance with the terms or conditions of, any license required under chs. NR 600 to 699 would cause undue or unreasonable hardship to any person, and the variance would not result in undue harm to human health or the environment.

(1) **LIMITATIONS.** A variance under this section:

(a) Shall be issued in written form.

(b) May not exceed 5 years in duration.

(c) May be renewed or extended only after opportunity for a public hearing on each variance renewal or extension.

(d) May be revoked by the department at any time if the department determines that the revocation is appropriate to protect human health or the environment.

(e) May require that the person to whom a variance is issued comply with any appropriate requirements of chs. NR 600 to 699, as a condition of issuance, in order to protect human health or the environment.

(f) May not be issued for land treatment facilities.

(2) **VARIANCE REQUEST.** A person who wishes to obtain a variance shall submit to the department the variance fee specified in s. NR 680.45 and the following:

(a) Fees and materials meeting the general report and plan submittal requirements of s. NR 680.05(1).

(b) A statement explaining the need for a variance and the effects of granting a variance.

1. Explain why application for or compliance with a required license under chs. NR 600 to 699 would cause undue or unreasonable hardship to any person. For purposes of this section, "undue or unreasonable hardship" means a hardship that is a result of unusual circumstances, which are not self-created. The delay, inconvenience or expense which are inherent in the facility approval process under s. 144.44, Stats., are not considered to be unreasonable.

2. Present the history of events that lead to the current situation, and demonstrate that the hardship results from events beyond the control of the person applying for the variance.

3. Demonstrate that the proposed variance would not result in undue harm to human health or the environment.

(c) General feasibility report and plan of operation information meeting the requirements of ss. NR 680.06(3).

(d) Specific feasibility report and plan of operation information meeting the informational requirements of:

1. Section NR 640.07(3) for a hazardous waste small storage facility meeting the characteristics of s. NR 640.07(1).

2. Section NR 640.06 for a hazardous waste container facility.

3. Section NR 645.06 for a hazardous waste tank system.

4. Section NR 655.06 for a hazardous waste pile.
5. Section NR 665.06 for a hazardous waste incinerator.
6. Sections NR 670.06 and 670.07 for a hazardous waste miscellaneous unit facility.
7. Sections NR 660.09 and 660.10 for a hazardous waste landfill or surface impoundment.

NOTE: The applicant is encouraged to contact the department early for assistance in planning the content of a complete application.

(3) **COMPLETENESS.** The department shall advise the applicant in writing of the receipt of any variance request. The department shall determine, in writing, whether the variance application is complete or incomplete within 65 business days after receipt of the variance application. The department may require the applicant to provide additional information to document compliance with s. NR 600.04, and chs. NR 630 to 699.

(4) **FINAL DETERMINATION.** The department shall make a final written determination on the variance request within 65 business days after finding the application complete. The final determination may require construction inspection and fees under s. NR 680.09.

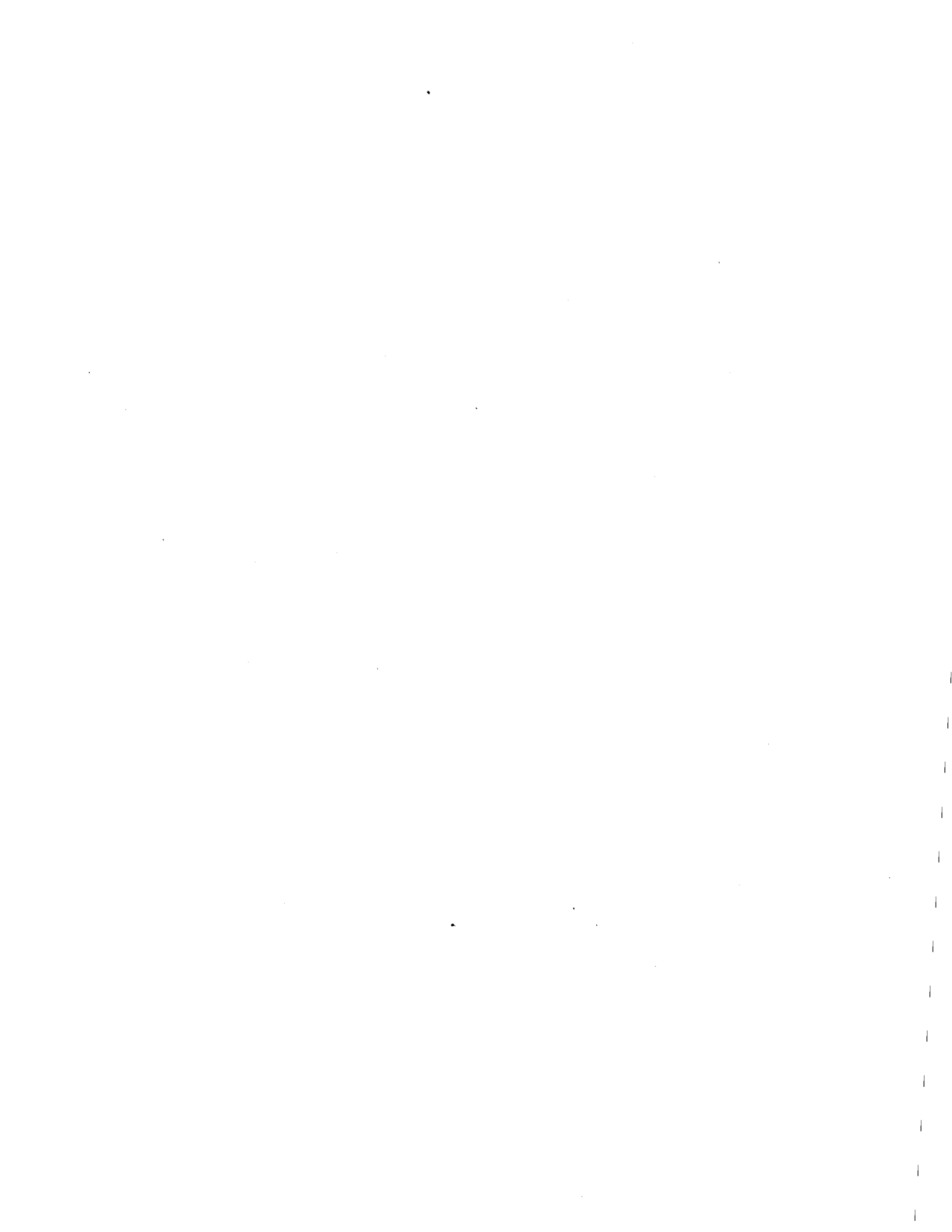
Note: The use of the variance authority is intended to promote activities such as the cleanup of hazardous waste contamination and the recycling of hazardous waste. For example, in order to clean up a contaminated site, it may be necessary to treat excavated soil that is hazardous. In this situation it may be an undue or unreasonable hardship to delay the cleanup of the contamination while awaiting the issuance of a hazardous waste treatment license. Further, in some situations a hazardous waste recycling activity may be exempt from the requirement to obtain a treatment license but the associated storage is subject to the storage license requirement. The requirement to obtain a storage license may create an undue or unreasonable hardship if it has the effect of precluding the recycling of hazardous waste.

NR 680.51 RESEARCH, DEVELOPMENT AND DEMONSTRATION LICENSES. (1) The department may issue a research, development and demonstration license for any hazardous waste treatment facility whose owner or operator proposes to utilize an innovative and experimental hazardous waste treatment technology or process for which standards are not contained in chs. NR 630 to 670. Licenses issued under this section shall include conditions that will assure protection of human health and the environment. Each license shall:

(a) Provide for the construction of any necessary facility and for operation of the facility for not longer than one year, but the license may be renewed under sub. (5);

(b) Provide for the receipt and treatment by the facility of only those types and quantities of hazardous waste which the department deems necessary for purposes of determining the efficacy and performance capabilities of the technology or process and the effects of the technology or process on human health or the environment; and

(c) Include requirements which the department deems necessary to protect human health and the environment, including, but not limited to requirements regarding monitoring, operation, proof of financial responsibility, closure, and remedial action, and requirements which the department deems necessary regarding testing, recordkeeping and reporting information to the department with respect to the operation of the facility.



(2) For the purpose of expediting review and issuance of licenses under this section, the department may, consistent with the protection of human health and the environment, modify or waive license application and issuance requirements in chs. NR 630 to 685 except that it may not modify or waive requirements regarding proof of financial responsibility, including insurance, or waive procedures for public participation.

(3) Research, development and demonstration licensing reports shall be prepared in accordance with the report preparation requirements in ss. NR 680.05 and 680.06.

(4) The department may order an immediate termination of all operations at the facility at any time if the department determines that termination is necessary to protect human health and the environment.

(5) Any license issued under this section may be renewed not more than 3 times. Each renewal shall be for a period of not more than one year.

NR 680.52 TREATABILITY STUDY EXEMPTION. A treatability study of hazardous waste may be conducted without an operating license if the study is performed in accordance with s. NR 605.05(4) and (5).

NR 680.60 TERMINATION OF A REGULATED ACTIVITY. Any person who owns or operates a hazardous waste facility and who wishes or is required to terminate the regulated activity shall submit a closure plan for department approval and implement an approved closure plan that meets the requirements specified in s. NR 685.05. Any person who owns or operates a disposal facility and who wishes or is required to terminate the regulated activity shall submit a long-term care plan for approval and implement an approved long-term care plan that meets the requirements specified in s. NR 685.06. In accordance with ss. NR 655.10(2), 660.15(2) and 660.16(4), long-term care plans may be required for certain waste piles or surface impoundments or tanks where the department approves in-place disposal of wastes.

NR 685 - CLOSURE, LONG-TERM CARE AND FINANCIAL RESPONSIBILITY

page	section
1	NR 685.01 - Purpose
1	NR 685.02 - Applicability
1	NR 685.03 - Definitions
1	NR 685.04 - Termination of regulated activity
2	NR 685.05 - Closure
6	NR 685.06 - Long-term care
10	NR 685.07 - Financial responsibility
23	NR 685.08 - Liability requirements
49	NR 685.09 - Environmental Fees

NR 685.01 PURPOSE. The purpose of this chapter is to specify the requirements for closure, long-term care and financial responsibility for hazardous waste facilities.

NR 685.02 APPLICABILITY. Except as otherwise provided, this chapter applies to owners and operators of hazardous waste storage, treatment or disposal facilities. This chapter does not apply to solid waste facilities that store, treat or dispose of only:

- (a) Non-hazardous solid waste,
- (b) Metallic mining wastes resulting from a mining operation as defined in s. 144.81(5), Stats.,
- (c) Polychlorinated biphenyls (PCBs), except where portions of this chapter are referenced in ch. NR 157, or
- (d) A combination of wastes described in pars. (a) to (c).

NR 685.03 DEFINITIONS. The definitions in s. NR 600.03 apply to this chapter.

NR 685.04 TERMINATION OF REGULATED ACTIVITY. Any person who owns or operates a hazardous waste facility and who wishes or is required to terminate the regulated activity shall submit a closure plan for department approval and implement an approved closure plan that meets the requirements specified in s. NR 685.05, as well as the requirements of ss. NR 640.16, 645.17, 655.11 and 670.10 for storage facilities, s. NR 660.15 or, if applicable s. NR 660.16, for landfills and surface impoundments, s. NR 665.10 for incinerators, s. NR 640.16, 645.17, 655.11, 665.10 and 670.10 for treatment facilities, or s. NR 660.19(14) for surface impoundments. Any person who owns or operates a disposal facility and who wishes or is required to terminate the regulated activity shall submit a long-term care plan for approval and implement an approved long-term care plan that meets the requirements specified in s. NR 685.06, as well as the requirements of s. NR 660.17. In accordance with ss. NR 655.11(2), 660.15(2) and 660.16(4), long-term care plans may be required for certain waste piles or surface impoundments where the department approves of in-place disposal of wastes.

NR 685.05 CLOSURE. (1) This subsection specifies the closure performance standard for all hazardous waste facilities. The owner or operator of a facility shall close the facility in a manner that:

(a) Minimizes the need for further maintenance;

(b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post closure escape of wastes, hazardous leachate, contaminated runoff or waste decomposition products to ground or surface waters, or to the atmosphere;

(c) Meets the additional closure requirements for landfills and surface impoundments as specified in s. NR 660.15, where required for all disposal facilities, or other facilities where required under s. NR 640.16, 645.17, 655.11, 665.10 or 670.10, where the facilities have not obtained an operating license under ch. NR 680;

(d) Meets the additional closure requirements for landfills and surface impoundments as specified in s. NR 660.16, where required for all disposal facilities or other facilities where required under s. NR 640.16, 645.17, 655.11, 665.10 or 670.10, where the facilities have obtained an operating license under ch. NR 680; and

(e) Complies with the requirements of this chapter and the requirements of ss. NR 640.16, 645.17, 655.06, 655.10, 655.12 and 660.19(14).

(2) The owner or operator of a facility shall have a written closure plan demonstrating compliance with this subsection. The plan closure shall be submitted to the department for approval as part of the reports or plans required under chs. NR 635 to 680. Closure plans may be required by the department for a facility which is no longer in operation, if the facility was in existence on August 1, 1981 and has not been properly closed. A copy of the approved closure plan and all revisions to the closure plan shall be provided to the department upon request, including a written request by mail, and kept at the facility until final closure is completed and certified in accordance with sub. (10). The closure plan shall identify the steps necessary to finally or partially close the facility at any point during its active life and to finally close the facility at the end of its active life. The department's approval of the closure plan shall require that the approved closure plan is consistent with this section and the applicable requirements of ss. NR 640.13, 645.12, 650.11, 655.09, 660.09, 665.10 and 670.07. The closure plan shall identify steps necessary to perform partial or final closure of the facility at any point during its active life. The closure plan shall include, but not be limited to:

(a) A description of how each hazardous waste management unit at the facility will be closed in accordance with sub. (1);

(b) A description of how final closure of the facility will be conducted in accordance with sub. (1). The description shall identify the maximum extent of the operations which will be unclosed during the active life of the facility;

(c) An estimate of the maximum inventory of hazardous wastes ever on-site over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing or disposing of all hazardous wastes, and identification of the types of the off-site hazardous waste management units to be used, if applicable;

(d) A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils and criteria for determining the extent of decontamination required to satisfy the closure performance standard;

(e) A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, groundwater monitoring, leachate collection and run-on and run-off control;

(f) A schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule shall include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure;

Note: For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover shall be included.

(g) For facilities subject to sub. (1)(c) or (d) and required to provide long-term care in accordance with s. NR 685.06, the anticipated time until final closure and any anticipated partial closures and the time required for any intervening closure activities which will allow tracking of the progress of closure;

(h) The most recent closure cost estimates required under s. NR 685.07(2) and (3)(b);

(i) A description of how the requirements of subs. (5), (6), (7) and (8) will be met;

(j) A description of how the applicable closure requirements in ss. NR 640.16, 645.17, 655.11, 660.15, 660.16, 665.10 and 660.19(14) will be met; and

(k) For facilities that use trust funds to establish proof of financial responsibility under s. NR 685.07(5) and that are expected to close prior to the expiration of the license, or in the case of interim licensed facilities whose remaining operating life is less than 20 years, an estimate of the expected year of final closure.

(3)(a) The owner or operator shall submit any request for modifications of a closure plan approval to the department in accordance with ss. NR 620.15(5)(e), 680.07 and 680.42(5). The written request shall include a copy of the amended closure plan required by s. NR 680.07 for approval by the department. Requests shall be submitted at least 60 days prior to any proposed change in facility design or operation that affects the closure plan, or no later than 60 days after an unexpected event has occurred that affects the closure plan. If an unexpected event that affects the closure plan occurs during the time a partial or final closure is being conducted, the owner or operator shall submit the request no later than 30 days after the unexpected event. Owners or operators of a surface impoundment or waste pile that do not have an approved closure plan allowing for any hazardous waste or waste contaminated materials to be disposed of in-place in accordance with s. NR 655.11(2)(b), 660.15(1)(d) or 660.16(4) who may leave hazardous waste or waste contaminated materials in-place at closure shall request department approval for such action by submitting, to the department, an amendment to the closure plan no later than 60 days after the owner or operator determines the hazardous waste or hazardous waste contaminated materials will remain in-place at closure. If the determination that hazardous waste or hazardous waste contaminated materials will remain in-place at closure is made during the time a partial or final closure is being conducted, the owner or operator shall submit an amendment to the closure plan no later than 30 days from the date the determination is made.

Note: Sections NR 655.11(2)(b), 660.15(1)(d), 660.16(4) and s. NR 685.06(6) require additional submittals, including a long-term care plan, in addition to an amended closure plan, when a request for approval for in-place disposal is made.

(b) The owner or operator shall submit a request for modification of a closure plan approval in accordance with par. (a) whenever:

1. Changes in operating plans or facility design affect the closure plan;

2. There is a change in the expected year of closure;

3. In conducting partial or final closure activities, unexpected events require an amendment of the closure plan; or

4. The department requests an amendment to the closure plan to meet any of the closure requirements of this chapter, any plan approval requirements or license conditions. The owner or operator shall submit the modified plan within 60 days of the department's request or within 30 days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the department will be approved in accordance with this subdivision.

(c) The owner or operator may submit a request for modification of a closure plan approval in accordance with par. (a) at any time prior to the notification to the department of partial or final closure under sub. (4). After notification, a request may be submitted by the owner or operator only for the reasons specified in par. (b)3. or 4.

(4)(a) At least 180 days prior to beginning the final closure or any partial closure of a facility, the owner or operator shall notify the department in writing of the intent to close the facility. No later than this date, for final closures, the owner or operator shall notify current users of the facility of the intent to close the facility. When, after July 1, 1985, notice is received by the department for a facility which has applied for or received an interim license under ss. NR 680.20, 680.21, 680.22, 680.23 and 680.24, but which has not obtained an operating license under ch. NR 680, the department shall provide the public, through a newspaper notice, the opportunity to submit written comments on, and request modifications of, the closure plan within 30 days of the date of the notice. The department may also, in response to a request, or at its own discretion, hold an informational hearing pursuant to s. 144.431(2), Stats., whenever a hearing might clarify one or more issues concerning a closure plan. The department shall give public notice of the hearing at least 30 days before it occurs. Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the 2 notices may be combined. The department shall approve, deny or modify the closure plan within 65 business days after the close of the comment period or 65 business days after the public hearing, whichever is later, regardless of any prior approval under s. NR 680.24. If the department denies the closure plan, the owner or operator shall submit a modified or new plan for approval within 30 days. A new or modified plan, if required, shall be approved or modified by the department within 65 business days of receipt. If the department modifies the plan, this modified plan becomes the approved closure plan.

Note: Closure should begin within 30 days of receiving the final volume of waste.

(b) If the facility's license is terminated or if the facility is otherwise ordered, by judicial decree or final order under 42 USC 6928, to cease receiving hazardous waste or to close, then the requirements of this subsection do not apply. The owner or operator shall, however, close the facility in accordance with the deadlines established in s. NR 685.05(6) and (7).

Note: The publication containing title 42 of the United States code may be obtained from:

The Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

(5) Nothing in subs. (2) to (4) shall preclude the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of final or partial closure.

(6) Within 90 days after receiving the final volume of hazardous wastes at the facility or any unit, or 90 days after approval of the closure plan under sub. (4), if that is later, the owner or operator shall remove

from the facility or unit, or manage on site, all hazardous wastes in accordance with requirements of chs. NR 600 to 685 and an approved closure plan as specified in sub. (2). Prior to the end of the 90 day period, the owner or operator may obtain department approval for a longer period, in accordance with sub. (3), if the owner or operator demonstrates at least 30 days prior to the expiration of the 90 day period that:

(a) All steps necessary to prevent threats to human health and the environment have been taken and shall continue to be taken including compliance with all applicable license requirements; and

(b) The activities required to comply with this subsection shall, of necessity, take longer than 90 days to complete; or

(c) The facility or unit has the capacity to receive additional wastes, there is a reasonable likelihood that a person other than the owner or operator will recommence operation of the facility or unit, and closure of the facility or unit would be incompatible with continued operation of the site.

(7) The owner or operator shall complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes at the facility or unit. Prior to the end of the 180 day period, the owner or operator may obtain department approval for a longer period, in accordance with sub. (3), if the owner or operator demonstrates at least 30 days prior to the expiration of the 180 day period that:

(a) All steps necessary to prevent threats to human health and the environment from the unclosed but inactive facility have been taken and will continue to be taken; and

(b) The closure activities shall, of necessity, take longer than 180 days to complete; or

(c) The facility or unit has the capacity to receive additional wastes, there is reasonable likelihood that a person other than the owner or operator will recommence operation of the facility or unit, and closure of the facility or unit would be incompatible with continued operation of the site.

(8) During the partial and final closure periods, all contaminated soil, equipment and structures shall be properly disposed of or decontaminated except for landfills and miscellaneous units as provided in ss. NR 660.15, 660.16 and 670.10 and tank systems, waste piles and surface impoundments as provided in ss. NR 655.11(2)(b), 660.15(1)(d) and 660.16(4). By removing any hazardous wastes or hazardous constituents during partial and final closure, the owner or operator may become a generator of hazardous waste and shall handle that waste in accordance with all applicable requirements of chs. NR 610 and 615.

(9) At completion of closure of the facility or any unit, all required equipment shall be provided and arrangements shall be made to implement the long-term care provisions contained in the approved long-term care plan.

(10)(a) Except as provided in par. (b), at completion of closure, the owner or operator shall submit to the department a certification statement by the owner or operator that the facility or unit has been closed in accordance with the requirements of this chapter, the approved closure plan, any plan approval, any plan of operation and all applicable license conditions. The department may require submittal of a certification statement by an independent registered professional engineer for facilities or units that have the potential to impact public health, safety or welfare or the environment at the time of final or partial closure.

(b) Within 60 days after completion of partial closure of each hazardous waste surface impoundment, waste pile or landfill unit, or the completion of final closure of each hazardous waste surface impoundment, waste pile or landfill facility, the owner or operator shall submit to the department:

1. A certification statement, signed by both the owner or operator and an independent registered professional engineer, that the facility has been closed in accordance with the requirements of chs. NR 600

to 685, the approved closure plan, any plan approval, any plan of operation and all applicable license conditions; and

2. A construction documentation report that meets the applicable requirements of s. NR 660.11, documenting all the aspects of closure work, including the placement of any covers over disposal facilities or units.

NR 685.06 LONG-TERM CARE. (1) The requirements of this section apply to the owners and operators of facilities identified in pars. (a) to (d). The owner of the facility shall provide long-term care for a period of 30 years from the date partial or final closure is completed under s. 144.441, Stats., unless the responsibility to provide long-term care is terminated earlier under s. 144.441(2)(d) or 144.441(2)(e) for the following:

(a) All hazardous waste disposal facilities;

(b) Waste piles and surface impoundments for which the owner or operator intends to remove the wastes at closure to the extent that this section is made applicable to the facilities in s. NR 655.11(2)(b), 660.15(1)(d) or 660.16(4);

(c) Tank systems that are required under s. NR 645.17(1)(a)2. to meet requirements for landfills; and

(d) Other facilities where required under ss. NR 600.07 or 640.16, 665.10 and 670.10.

(2) Long-term care shall consist of at least the following:

(a) Monitoring and reporting in accordance with the requirements of chs. NR 635 to 670.

(b) Maintenance and monitoring of waste containment systems and maintenance of drainage control features, slopes, vegetative cover, monitoring equipment and continuation of security requirements necessary to prevent hazards to human health, in accordance with the requirements of chs. NR 635 to 670.

(c) Control of erosion, settlement, surface water drainage and land usage.

(d) Measures needed to correct contamination caused by leachate or gases generated within the landfill and any other maintenance or security features necessary to protect the environment and prevent hazards to human health.

(3) Subsequent use of a site on or in which hazardous waste remains after closure may not disturb the integrity of the final cover, liner or any other component of any containment system, or the facility's monitoring system, unless the owner or operator can demonstrate to the department that the disturbance:

(a) Is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment; or

(b) Is necessary to reduce a threat to human health or the environment.

(4) All long-term care activities shall be in accordance with the provisions of the approved long-term care plan as specified in sub. (5).

(5) The owner or operator of a hazardous waste disposal facility shall have a written long-term care plan demonstrating compliance with this subsection. In addition, certain other facilities are required, under ss. NR 600.07, 640.16, 645.17, 655.11, 660.17, 665.10 and 670.10, to have a long-term care plan

demonstrating compliance with this subsection. The long-term care plan shall be submitted to the department for approval as part of the application for an interim license under ch. NR 680. The long-term care plan shall also be submitted to the department for approval as part of the reports or plans required for an initial operating license, where specifically required under chs. NR 600 to 685. A copy of the approved long-term care plan and all revisions to the long-term care plan shall be provided to the department upon request, including a written request by mail, and be kept at the facility until final closure is completed and certified in accordance with s. NR 685.05(9) and the long-term care period begins. After final closure has been certified, the long-term care plan shall be kept at the office or location specified in par. (b)3. This long-term care plan shall identify the activities that will be carried out after any partial or final closure of each disposal unit and the frequency of these activities and include, but not be limited to:

(a) A description of the planned monitoring activities and frequencies at which they will be performed to comply with the requirements of chs. NR 635 to 670 during the long-term care period;

(b) A description of the planned maintenance activities and frequencies at which they will be performed to ensure:

1. The integrity of the cap and final cover or other containment system in accordance with the requirements of chs. NR 635 to 670;

2. The function of the facility monitoring equipment in accordance with the requirements of chs. NR 635 to 670;

3. The name, address and phone number of the person or office to contact during the long-term care period. This person or office shall keep an updated long-term care plan during the long-term care period; and

(c) The most recent long-term care cost estimates required under s. NR 685.07(2), (3)(a), (b)1.a. and b., and 2., (4)(a), (b)1. a. and b., 2., 3. and 4. and (7)(a)1. and 2..

(6)(a) The owner or operator shall submit any request for modification of a long-term care plan approval to the department in accordance with ss. NR 680.07, 680.45(1) to (3), 680.42 and 620.14(5). The written request shall include a copy of the amended long-term care plan for approval by the department. Requests shall be submitted at least 60 days prior to any proposed change in facility design or operation that affects the long-term care plan, or no later than 60 days after an unexpected event has occurred that affects the long-term care plan. Owners or operators of a surface impoundment or waste pile that do not have an approved closure plan allowing for any hazardous waste or waste contaminated materials to be disposed of in-place in accordance with s. NR 655.11(2)(b), 660.15(1)(d) or 660.16(4) who may leave hazardous waste or waste contaminated materials in-place at closure shall submit to the department, a long-term care plan at the same time an amendment to the closure plan is submitted in accordance with s. NR 685.05(3)(a).

(b) The owner or operator shall submit a request for modification of a long-term care plan approval in accordance with par. (a) whenever:

1. Changes in the operating plans or facility design affect the long-term care plan;

2. There is a change in the expected year of final closure;

3. Events occurring during the active life of the facility, including partial and final closures, affect the long-term care plan; or

4. The department requests an amendment to the long-term care plan to meet any of the long-term care requirements of chs. NR 600 to 685, any plan approval requirements or license conditions. The owner or

operator shall submit the modified long-term care plan no later than 60 days after the department's request or no later than 90 days if the unit is a surface impoundment or waste pile not previously required to prepare a contingent long-term care plan. Any modifications requested by the department will be approved, disapproved or modified in accordance with the procedures in s. NR 680.07.

(c) The owner or operator may submit a request for modification of a long-term care plan approval in accordance with par. (a) at any time during the active life of the facility. The owner may submit a request for modification of the long-term care plan approval in accordance with par. (a) at any time during the long-term care period.

(7) The department shall, upon receipt, after July 1, 1985, of notification of closure under s. NR 685.05(4) for a disposal facility which has applied for or has obtained an interim license under ss. NR 680.20, 680.21, 680.22, 680.23 and 680.24 but which has not obtained an operating license under ch. NR 680, provide the public, through a newspaper notice, the opportunity to submit written comments on, and request modifications of, the long-term care plan within 30 days after the date of the notice. The department may also, in response to a request or at its own discretion, hold an informational hearing pursuant to s. 144.431(2), Stats., whenever a hearing might clarify one or more issues concerning a long-term care plan. The department shall give public notice of the hearing at least 30 days before it occurs. Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the 2 notices may be combined. The department shall approve, deny or modify the long-term care plan within 65 business days after the close of the comment period or 65 business days after the public hearing, whichever is later, regardless of any prior approval under s. NR 680.24. If the department denies the long-term care plan, the owner or operator shall submit a modified or new plan for approval within 30 days. A new or modified plan, if required, shall be approved, denied or modified by the department within 65 business days of receipt. If the department modifies the plan, this modified plan becomes the approved long-term care plan.

(8) At the time the certification of closure under s. NR 685.05(9) is submitted to the department, or as provided in s. NR 680.06(3)(k), whichever is earlier, the owner of a disposal facility shall file with the office of the register of deeds in each county in which a portion of the facility was located, and with the department, a survey plat, indicating the location and dimensions of landfill cells or other disposal units with respect to permanently surveyed benchmarks. This plat shall be prepared and certified by a professional land surveyor. The plat filed with each office of the register of deeds shall contain a note, prominently displayed, which states the owner's obligation to restrict disturbance of the site as specified in sub. (3). In addition, at the time the certification under s. NR 685.05(10) is submitted to the department, the owner shall submit to the office of the register of deeds in each county in which a portion of the facility was located, and to the department, a record of the type, location and quantity of hazardous wastes disposed of within each cell or unit of the facility. For wastes disposed of before these regulations were promulgated, the owner shall identify the type, location and quantity of the wastes to the best of the owner's knowledge and in accordance with any records the owner has kept. Any changes in the type, location or quantity of hazardous wastes disposed of within each cell or area of the facility that occur after the survey plat and record of wastes have been filed shall be reported to the office of the register of deeds in each county in which a portion of the facility was located and to the department.

(9) The owner of the property on which a disposal facility is located shall, at the time the certification of closure under s. NR 685.05(9) is submitted to the department, record, in accordance with applicable requirements for the recording of documents in the office of the register of deeds under ss. 59.51 to 59.575, Stats., a notation on the deed to the facility property, or on some other instrument which is normally examined during a title search, that will in perpetuity notify any potential purchaser of the property that:

- (a) The land has been used to manage hazardous wastes;
- (b) Its use is restricted under sub. (3);

(c) The survey plat and record of the type, location and quantity of hazardous waste disposed of within each cell or disposal unit of the facility required in sub. (5) have been filed with the office of the register of deeds in each county in which a portion of the facility was located and with the department; and

(d) Submit a certification to the department, signed by the owner of the property, that the owner of the property has recorded the notation specified in this subsection including a copy of the document in which the notation has been placed.

(10) If at any time the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal facility or unit is located proposes to remove the waste and waste residues, the liner, if any, and all contaminated underlying and surrounding soil, the owner or operator shall submit a request to modify the long-term care plan to the department for prior approval in accordance with ss. NR 680.07, 680.42(5) and 680.45(1) to (3). The owner or operator shall demonstrate that the removal of the hazardous waste will satisfy the criteria specified in sub. (3). By removing the hazardous waste, the owner or operator may become a generator of hazardous waste, and shall manage the hazardous waste in accordance with chs. NR 600 to 685. If a proposal is approved by the department, the owner or operator may then request that the department approve either the removal of the notation on the deed to the facility property or other instrument normally examined during a title search, or the addition of a notation to the deed or instrument indicating the removal of the waste.

(11) Within 60 days after the completion of the long-term care period for the disposal facility or any disposal unit, the owner shall submit to the department, by registered mail, a certification that the long-term care period for the facility or unit was performed in accordance with the specifications in the approved long-term care plan. The certification shall be signed by the owner and an independent registered professional engineer. Documentation supporting the independent engineer's certification shall be furnished to the department upon request until the department releases the owner from the financial assurance requirements for long-term care under s. NR 685.07.

NR 685.07 FINANCIAL RESPONSIBILITY. (1) APPLICABILITY. (a) Closure. The owner of every hazardous waste storage, treatment or disposal facility shall provide, as part of an interim license submittal or an initial operating license application and annually thereafter for the period of active facility life, proof of financial responsibility to ensure compliance with the closure requirements of the approved plan of operation for the facility, or if no approved plan of operation exists for the facility, with the requirements in s. NR 685.05.

(b) Long-term care. 1. The owner of every hazardous waste disposal facility shall provide, as part of an initial license submittal or an initial operating license application and annually thereafter for the period of active facility life, proof of financial responsibility to ensure compliance with the long-term care requirements of the approved plan of operation for the facility, or if no approved plan of operation exists for the facility, with the requirements in s. NR 685.06. An owner responsible for long-term care shall be responsible for the 30 year period of owner responsibility.

2. The owner of every hazardous waste facility required under s. NR 600.07, 640.16, 645.17, 655.11, 660.17 or 665.10 to submit a long-term care plan, shall provide proof of financial responsibility to ensure compliance with the long-term care requirements of s. NR 685.06. An owner responsible for long-term care shall be responsible for the 30 year period of owner responsibility.

(c) Successors in interest. Any person acquiring rights of ownership, possession or operation of a licensed hazardous waste storage, treatment or disposal facility shall be subject to all requirements of the license for the facility and shall provide any required proof of financial responsibility to the department in accordance with sub (5). The previous owner is responsible for closure and long-term care, and shall maintain any required proof of financial responsibility, until the person acquiring ownership, possession or

operation of the facility establishes any required proof of financial responsibility in accordance with s. NR 680.44.

Note: See s. NR 680.44 for transference of responsibility procedures.

(2) **COST ESTIMATES.** For the purpose of determining the amount of proof of financial responsibility that is required in sub. (1), the owner shall estimate the total cost of closure in accordance with sub. (3), estimate the annual cost of long-term care of the facility for the period of owner responsibility in accordance with sub. (4), and submit the estimated closure and long-term costs, together with all necessary justification to the department for approval. The costs shall be reported in current dollars and on a per unit basis. The source of the estimates shall be indicated. The owner of the facility shall submit the cost estimates required under this subsection to the department:

- (a) As part of an interim license application under s. NR 680.21;
- (b) As part of a plan of operation submittal or feasibility and plan of operation submittal;
- (c) As part of the initial license application under s. NR 680.31;
- (d) As part of the annual report required under s. NR 630.40;
- (e) When required under sub. (3)(b);
- (f) As part of a closure plan under s. NR 685.05; or
- (g) As part of a long-term care plan under s. NR 685.06.

(3) **COST ESTIMATES FOR CLOSURE.** (a) General requirements. At a minimum, closure costs shall include the cost of closing the facility in accordance with s. NR 685.05 and chs. NR 600 to 685, any necessary cover material, topsoil, seeding, fertilizing, mulching, labor and disposal or decontamination of hazardous waste and residues on equipment and structures. Closure cost estimates:

1. Shall equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by the closure plan under s. NR 685.05;

2. Shall be based on the costs to the owner or operator of hiring a third party to close the facility. A third party is a party who is neither a parent corporation nor a subsidiary of the owner or operator. The owner or operator of a disposal facility may use costs for on-site disposal if the owner or operator can demonstrate that on-site disposal capacity will exist at all times over the life of the facility;

3. May not incorporate any salvage value that may be realized with the sale of hazardous wastes, facility structures or equipment, land or other assets associated with the facility at the time of partial or final closure; and

4. May not incorporate a zero cost for hazardous wastes that may have economic value.

(b) Adjustments. The owner or operator of a hazardous waste facility shall prepare and submit to the department a new closure cost estimate during the active life of the facility:

1. To adjust for inflation, submitted within 60 days before the anniversary date of the establishment of proof of financial responsibility for closure under this section. For owners or operators of disposal facilities using the net worth test under sub. (5)(f), the closure cost estimate shall be updated for inflation within 30 days after the close of the company's fiscal year and before the submittal of the annual reapplication under

s. 144.443(5)(d), Stats. The adjustment may be made by recalculating the maximum costs of closure in current dollars or by using an inflation factor derived from the most recent implicit price deflator for gross national product published by the U.S. department of commerce in its Survey of Current Business, as specified in subpars. a. and b. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year.

a. The first adjustment shall be made by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate.

b. Subsequent adjustments shall be made by multiplying the latest adjusted closure cost estimate by the latest inflation factor.

2. When required by the department to meet the requirements of s. NR 685.05 and chs. NR 600 to 685. The department may require an adjustment in the cost estimate and the amount of required proof of financial responsibility for closure based on prevailing or projected interest and inflation rates.

3. When the requirements of s. NR 685.05(3) apply. The new cost estimates shall be contained in the submitted closure plan;

4. Within 30 days after the department approves a request for modification of the closure plan approval, if the modification increases the cost of closure above the cost estimate amount included in the closure plan. The revised closure cost estimate shall be adjusted for inflation as specified in sub. (3)(b).

(c) Maintaining copies of the cost estimate. During the operating life of the facility the owner or operator shall keep at the facility the latest closure cost estimate prepared in accordance with sub. (3)(a) and, when this estimate has been adjusted, the latest adjusted closure cost estimate prepared in accordance with sub. (3)(b).

(4) COST ESTIMATES FOR LONG-TERM CARE. (a) General requirements. At a minimum, long-term care costs shall include the costs to provide long-term care in accordance with s. NR 685.06 and chs. NR 600 to 685, land surface care; gas monitoring; leachate pumping, transportation, monitoring and treatment; groundwater monitoring, collection and analysis; maintenance of facility monitoring and waste containment devices; and security requirements necessary to prevent hazards to human health. Long-term care cost estimates:

1. Shall be based on the costs to the owner of hiring a third party to conduct long-term care activities. A third party is a party who is neither a parent corporation nor a subsidiary of the owner; and

2. Shall be calculated by multiplying the annual long-term care cost estimate by the number of years of long-term care required under s. NR 685.06 and chs. NR 600 to 685.

(b) Adjustments. The owner or operator of a hazardous waste facility shall prepare and submit to the department a new long-term care cost estimate during the active life of the facility:

1. To adjust for inflation, submitted within 60 days before the anniversary date of the establishment of proof of financial responsibility for long-term care under this section. For owners or operators of disposal facilities using the net worth test under sub. (5)(f), the long-term care cost estimate shall be updated for inflation within 30 days after the close of company's fiscal year and before the submittal of the annual reapplication under s. 144.443(5)(d), Stats. The adjustment may be made by recalculating the long-term care cost estimate in current dollars or by using an inflation factor derived from the most recent implicit price deflator for gross national product published by the U.S. department of commerce in its Survey of Current Business, as specified in subd. 1.a. and b. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year.

a. The first adjustment shall be made by multiplying the long-term care cost estimate by the inflation factor. The result is the adjusted long-term care cost estimate.

b. Subsequent adjustments shall be made by multiplying the latest adjusted long-term care cost estimate by the latest inflation factor.

2. When required by the department to meet the requirements of s. NR 685.06 and chs. NR 600 to 685. The department may require an adjustment in the cost estimate and the amount of required proof of financial responsibility for long-term care based on prevailing or projected interest and inflation rates.

3. When the requirements of s. NR 685.06(6) apply. The new cost estimate shall be contained in the submitted long-term care plan.

4. Within 30 days after the department approves a request for modification of the long-term care plan approval, if the modification increases the cost of long-term care above the cost estimate amount included in the long-term care plan. The revised long-term care cost estimate shall be adjusted for inflation as specified in sub. (4)(b).

(c) Maintaining copies of the cost estimate. During the operating life of the facility, the owner or operator shall keep at the facility the latest long-term care cost estimate prepared in accordance with par. (a) and, when this estimate has been adjusted, the latest adjusted long-term care cost estimate in accordance with par. (b).

(5) **PROOF OF FINANCIAL RESPONSIBILITY - METHODS.** Financial assurances for closure and long-term care shall be established separately. The owner shall specify, as part of the plan of operation submittal or interim license submittal, which method of providing proof of financial responsibility shall be used for closure and for long-term care. To provide proof of financial responsibility, the applicant shall use one of the following methods for each account:

(a) Performance or forfeiture bond. 1. If the owner chooses to submit a bond, it shall be in the amount determined according to sub. (7)(b)2. or (c)2. conditioned upon faithful performance by the owner, and any successor in interest, of all closure or long-term care requirements of the approved plan of operation, or if no approved plan of operation exists for the facility, all applicable requirements in s. NR 685.05 or 685.06. The bond shall be delivered to the department as part of an interim license submittal or an initial operating license application. A bond submitted for a new facility shall be effective before the initial receipt of hazardous waste. The bond forms may be obtained from the department.

2. Bonds shall be issued by a surety company authorized to do surety business in this state. At the option of the facility owner, a performance bond or a forfeiture bond may be filed. The department shall be the obligee of the bond. Surety companies may have the opportunity to complete the closure or long-term care of the facility in lieu of cash payment to the department if the owner or any successor in interest fails to carry out the closure or long-term care requirements of the approved plan of operation, or the applicable requirements in s. NR 685.05 or 685.06. The department shall mail notification of its intent to use the funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 have been carried out.

3. Each bond shall provide that as long as any obligation of the owner for closure or long-term care remains, the bond may not be cancelled by the surety, unless a replacement bond or other proof of financial responsibility under this section is provided to the department by the owner. If the surety proposes to cancel the bond, the surety shall provide notice to the department in writing by registered or certified mail not less than 120 days prior to the proposed cancellation date. Not less than 30 days prior to the expiration of the

120 day notice period, the owner shall deliver to the department a replacement bond or other proof of financial responsibility under this section, in the absence of which all storage, treatment or disposal operations shall immediately cease and the bond shall remain in effect as long as any obligation of the owner remains for closure or long-term care.

4. The surety will not be liable for deficiencies in the performance of closure by the owner or operator after the department releases the owner or operator from the requirements of this section in accordance with sub. (9).

(b) Deposit with the department. An owner may deposit cash, certificates of deposit or U.S. government securities with the department, the amount of the deposit shall be determined according to sub. (7)(b)1. or (c)1. and shall be submitted as part of an interim license submittal or an initial operating license application. Cash deposits placed with the department shall be segregated and invested in an interest bearing account. All interest payments shall be accumulated in the account. The department shall have the right to use part or all of the funds to carry out the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 if the owner fails to do so. The department shall mail notification of its intent to use funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 have been carried out.

(c) Escrow account. If the owner establishes an escrow account, it shall be with a bank or financial institution located within the state of Wisconsin which is examined and regulated by the state or a federal agency in the amount determined according to sub. (7)(b)1. or (c)1. The assets in the escrow account shall consist of cash, certificates of deposit or U.S. government securities. All interest payments shall be accumulated in the account. A duplicate original of the escrow agreement with original signatures shall be submitted to the department as part of an interim license submittal or an initial operating license application. The escrow account forms may be obtained from the department. The department shall be a party to the escrow agreement, which shall provide that there may be no withdrawals from the escrow account except as authorized in writing by the department. The escrow agreement shall further provide that the department shall have the right to withdraw and use part or all of the funds in the escrow account to carry out the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 if the owner fails to do so. The department shall mail notification of its intent to use funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 have been carried out.

(d) Irrevocable trust. If the owner creates an irrevocable trust, it shall be exclusively for the purpose of ensuring that the owner or any successor in interest shall comply with the closure or long-term care requirements of the approved plan of operation, or if no approved plan of operation exists for the facility, the applicable requirements in s. NR 685.05 or 685.06. The trust agreement shall designate the department as sole beneficiary. The trustee shall be a bank or other financial institution located within the state of Wisconsin, which has the authority to act as a trustee and whose trust operations are regulated and examined by the state or by a federal agency. The trust corpus shall consist of cash, certificates of deposit or U.S. government securities in the amount determined according to sub. (7)(b)1. or (c)1. All interest payments shall be accumulated in the account. A duplicate original of the trust agreement with original signatures shall be submitted to the department for approval as part of an interim license submittal or an initial operating license application. The trust forms may be obtained from the department. The trust agreement shall provide that there may be no withdrawals from the trust fund except as authorized by the department. The trust agreement shall further provide that sufficient monies shall be paid from the trust fund to the beneficiary in the event that the owner or any successor in interest fails to complete the closure

or long-term care requirements of the approved plan of operation, or if no approved plan of operation exists for the facility, the applicable requirements in s. NR 685.05 or 685.06. The department shall mail notification of its intent to use funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 have been carried out.

(e) Letter of credit. 1. If the owner chooses to submit a letter of credit, it shall be in the amount determined according to sub. (7)(b)2. or (c)2. conditioned upon faithful performance by the owner and any successor in interest, of all closure or long-term care requirements of the approved plan of operation, or if no approved plan of operation exists for the facility, the applicable requirements in s. NR 685.05 or 685.06. The letter of credit must be irrevocable and issued for a period of at least 1 year. The original letter of credit shall be delivered to the department as part of an interim license submittal or an initial operating license application. A letter of credit submitted for a new facility shall be effective before the initial receipt of hazardous waste. The letter of credit forms may be obtained from the department.

2. Letters of credit shall be issued by a bank or financial institution which is examined and regulated by a federal agency, or in the case of a bank or financial institution located within the state of Wisconsin, which is examined and regulated by the state or a federal agency. The department shall be the beneficiary of the letter of credit.

3. Each letter of credit shall provide that as long as any obligation of the owner for closure or long-term care remains, the letter of credit may not be cancelled by the bank or financial institution, unless a replacement letter of credit or other proof of financial responsibility under this section is provided to the department by the owner. If the bank or financial institution proposes to cancel the letter of credit, the bank or financial institution shall provide notice to the department in writing by registered or certified mail not less than 120 days prior to the proposed cancellation date. Not less than 30 days prior to the expiration date of the 120 day notice period, the owner shall deliver to the department a replacement letter of credit or other proof of financial responsibility under this section, in the absence of which all storage, treatment or disposal operations shall immediately cease and the letter of credit shall remain in effect as long as any obligation of the owner remains for closure or long-term care, or the unused portion of the letter of credit shall be payable in full to the department.

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

5. The letter of credit shall further provide that the department shall have the right to withdraw and use part or all of the funds to carry out the closure or long-term care requirements of the plan of operation or the applicable requirements in s. NR 685.05 or 685.06 if the owner fails to do so. The department shall mail notification of its intent to use the funds for that purpose to the last known address of the owner. If the owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of determining whether or not the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 have been carried out.

6. The letter of credit shall be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution and date and providing the following information:

- a. EPA identification number,

b. Name and address of the facility, and

c. Amount of funds assured for closure of the facility by the letter of credit.

(f) Net worth test. 1. Only a company that meets the definition in s. 144.443(1)(b), Stats., may use the net worth method of providing proof of financial responsibility.

2. The owner shall comply with the net worth test requirements of s. 144.443(4) and (6) or (7), Stats., and the minimum security requirements of s. 144.443(8) or (9), Stats., whichever is applicable.

3. Companies using the net worth test to provide proof of financial responsibility for more than one facility shall use the total cost of compliance for all facilities in determining the net worth to closure and long-term care cost ratio.

4. The department determinations under the net worth test shall be done in accordance with s. 144.443(5), Stats.

(g) Insurance. 1. If the owner chooses to submit an insurance policy for closure or long-term care, it shall be issued for the maximum risk limit determined according to sub. (7)(b)3. or (c)3. A certificate of insurance shall be delivered to the department as part of an interim license submittal or an initial operating license application. An insurance policy submitted for a new facility shall be effective before the initial receipt of hazardous waste. Certificates of insurance shall be supplied by the department.

2. At a minimum, the agent or broker shall be licensed as a surplus lines insurance agent or broker. The department shall determine the acceptability of a surplus lines insurance company to provide coverage for proof of financial responsibility. The department shall base the determination on any evaluations prepared in accordance with s. 618.41(6)(d), Stats., by the office of the commissioner of insurance. The department shall be the beneficiary of the insurance policy.

3. The insurance policy shall provide that, as long as any obligation of the owner for closure or long-term care remains, the insurance policy may not be cancelled by the insurer, unless a replacement insurance policy or other proof of financial responsibility under this section is provided to the department by the owner. If the insurer proposes to cancel the insurance policy, the insurer shall provide notice to the department in writing by registered or certified mail not less than 120 days prior to the proposed cancellation date. Not less than 30 days prior to the expiration of the 120-day notice period, the owner shall deliver to the department a replacement insurance policy or other proof of financial responsibility under this section, in the absence of which all disposal operations shall immediately cease and the policy shall remain in effect as long as any obligation of the owner remains for closure or long-term care.

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

5. The insurance policy shall further provide that funds, up to an amount equal to the maximum risk limit of the policy, shall be available to the department to carry out the closure and long-term care requirements of the approved plan of operation, or if no approved plan of operation exists, all applicable requirements in s. NR 685.05 or 685.06, if the owner fails to do so. The department shall mail notification of its intent to use the funds for that purpose to the last known address of the owner. If the insurer or owner submits a written request for a hearing to the secretary of the department within 20 days after the mailing of the notification, the department shall, prior to using the funds, hold a hearing for the purpose of

determining whether or not the closure or long-term care requirements of the approved plan of operation or the applicable requirements in s. NR 685.05 or 685.06 have been carried out.

6. Each insurance policy shall contain a provision allowing assignment of the policy to a successor owner or operator. Assignment may be conditioned upon the consent of the insurer, if the consent is not unreasonably refused.

Note: These forms may be obtained from the Department of Natural Resources, Bureau of Solid Waste Management, P.O. Box 7921, Madison, Wisconsin, 53707 or any district office.

(h) Use of a financial mechanism for multiple facilities. An owner or operator may use a proof of financial responsibility mechanism specified in this section to meet the requirements of this chapter for more than one facility. Evidence of a proof of financial responsibility for multiple facilities submitted to the department shall include a list for each facility showing the EPA identification number, name, address and the amount of funds for closure or long-term care assured by the mechanism. The amount of funds available through the mechanism shall be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for closure or long-term care of any of the facilities covered by the mechanism, the department may direct only the amount of funds designated for that facility, unless the owner or operator agrees to the use of additional funds available under the mechanism.

(i) Other methods. The department shall consider other financial commitments made payable to or established for the benefit of the department to ensure the owner or operator shall comply with the closure or long-term care requirements of the approved plan of operation, or if no approved plan of operation exists for the facility, the applicable requirements in s. NR 685.05 or 685.06. The department shall review the request of any owner or operator to establish proof of financial responsibility under this section. The owner shall submit the request and all supporting information as part of the plan of operation.

(6) CHANGING METHODS OF PROOF OF FINANCIAL RESPONSIBILITY. The owner of a hazardous waste facility may change from one method of providing proof of financial responsibility under sub. (5) to another, but not more than once per year. A change may only be made on the anniversary of the submittal of the original method of providing proof of financial responsibility.

(7) FORMULAS FOR CALCULATING THE AMOUNT OF PROOF OF FINANCIAL RESPONSIBILITY. (a) General. In calculating the initial cost estimate and all adjustments required under this section, the owner or operator shall use the formula for the chosen method of providing proof of financial responsibility for closure and long-term care set out in this subsection.

1. The estimated annual rate of inflation used in the formulas shall be the latest percent change in the annual gross national product implicit price deflator published in the survey of current business by the bureau of economic analysis, U.S. department of commerce.

2. The estimated annual rate of interest used in the formulas shall be the rate specified by the financial institution managing the fund or deposit.

(b) Closure formulas. 1. Deposits in escrow, trust or department accounts. The formula for interest bearing accounts for closure shall be:

$$D = C \frac{(1 + f)}{(1 + i)}$$

in which:

D = the unknown deposit for closure

c. When unequal annual outpayments, actual dollar inpayments and a closure period are used, the formula shall be expressed as:

$$A = \left(\sum \left(R_x (1+f)^{RSL} \left(\frac{1+f}{1+(f+0.02)} \right)^{x+c} \right) \right) + \left((1+i) \left(\frac{(1+i)^{RSL} - 1}{i} \right) \right)$$

d. When unequal annual outpayments, actual dollar inpayments and no closure period are used, the formula shall be expressed as:

$$A = \left(\sum \left(R_x (1+f)^{RSL} \left(\frac{1+f}{1+(f+0.02)} \right)^x \right) \right) + \left((1+i) \left(\frac{(1+i)^{RSL} - 1}{i} \right) \right)$$

e. When equal annual outpayments, real dollar inpayments and a closure period are used, the formula shall be expressed as:

$$A = \left(R (1+f)^{RSL} \left(\frac{1+f}{1+(f+0.02)} \right)^c \left(\frac{1 - \left(\frac{1+f}{1+(f+0.02)} \right)^{LTC}}{\left(\frac{1+(f+0.02)}{1+f} \right)^{-1}} \right) \right) + \left((1+i)^{RSL+1} \left(\frac{1 - \left(\frac{1+f}{1+i} \right)^{RSL}}{i - f} \right) \right)$$

f. When equal annual outpayments, real dollar inpayments and no closure period are used, the formula shall be expressed as:

$$A = \left(R (1+f)^{RSL} \left(\frac{1 - \left(\frac{1+f}{1+(f+0.02)} \right)^{LTC}}{\left(\frac{1+(f+0.02)}{1+f} \right)^{-1}} \right) \right) + \left((1+i)^{RSL+1} \left(\frac{1 - \left(\frac{1+f}{1+i} \right)^{RSL}}{i - f} \right) \right)$$

C = the estimated cost of closure in today's dollars for the maximum area to be open at any point in time
 f = the estimated annual rate of inflation, expressed as a decimal
 i = the estimated annual rate of interest, expressed as a decimal

2. Bonds and letters of credit. The formula for noninterest bearing accounts for closure shall be:

$$CB = C (1 + f)$$

in which:

CB = the unknown amount of the bond or letter of credit for closure
 C = the estimated closure cost
 f = the estimated annual rate of inflation, expressed as a decimal

3. Insurance to cover closure. The formula for closure shall be:

$$CI = C (1 + f)$$

in which:

CI = the unknown amount of the closure insurance
 C = the estimated closure cost
 f = the estimated annual rate of inflation, expressed as a decimal

(c) Long-term care formulas. 1. Deposits in escrow, trust or department accounts. The following information used in calculating the amounts deposited to the interest bearing accounts for long-term care shall be specified in the submittals required under sub. (4): the rate of outpayment during the period of long-term care, expressed in equal annual outpayments or unequal annual outpayments, and the equal annual rate of inpayment, expressed as either real dollar inpayments or actual dollar inpayments.

a. When equal annual outpayments, actual dollar inpayments and a closure period are used, the formula shall be expressed as:

$$A = \left(R (1+f)^{RSL} \left(\frac{1+f}{1+(f+0.02)} \right)^C \left(\frac{1 - \left(\frac{1+f}{1+(f+0.02)} \right)^{LTC}}{\left(\frac{1+(f+0.02)}{1+f} \right)^{-1}} \right) \right) \div \left((1+i) \left(\frac{(1+i)^{RSL} - 1}{i} \right) \right)$$

b. When equal annual outpayments, actual dollar inpayments and no closure period are used, the formula shall be expressed as:

$$A = \left(R (1+f)^{RSL} \left(\frac{1 - \left(\frac{1+f}{1+(f+0.02)} \right)^{LTC}}{\left(\frac{1+(f+0.02)}{1+f} \right)^{-1}} \right) \right) \div \left((1+i) \left(\frac{(1+i)^{RSL} - 1}{i} \right) \right)$$

g. When unequal annual outpayments, real dollar inpayments and a closure period are used, the formula shall be expressed as:

$$A = \left(\sum \left(R_x (1+f)^{RSL} \left(\frac{1+f}{1+(f+0.02)} \right)^{x+c} \right) \right) \div \left((1+i)^{RSL+1} \left(\frac{1 - \left(\frac{1+f}{1+i} \right)^{RSL}}{i-f} \right) \right)$$

h. When unequal annual outpayments, real dollar inpayments and no closure period are used, the formula shall be expressed as:

$$A = \left(\sum \left(R_x (1+f)^{RSL} \left(\frac{1+f}{1+(f+0.02)} \right)^x \right) \right) \div \left((1+i)^{RSL+1} \left(\frac{1 - \left(\frac{1+f}{1+i} \right)^{RSL}}{i-f} \right) \right)$$

in which:

- A = the unknown inpayment for long-term care per year of active facility life
- i = the estimated annual rate of interest, expressed as a decimal
- f = the estimated annual rate of inflation, expressed as a decimal
- (f + 0.02) = the estimated rate of inflation plus 2% expressed as a decimal
- RSL = the estimated remaining life of the facility in years rounded to the nearest whole number
- R = the estimated annual costs
- R_x = the estimated unequal annual costs
- x = the year of long-term care
- LTC = the period of long-term care
- c = the closure period as a fraction of one year, expressed as a decimal
- Σ = the sum from year 1 through the last year of LTC

2. Bonds and letters of credit. For noninterest bearing accounts for long-term care, the rate of outpayment shall be as specified in subd. 1. and the rate of inpayment shall be in equal actual dollar inpayments.

a. When equal annual outpayments are used, the formula shall be expressed as:

$$PB = \left(R (1+f)^{RSL+1+c} \left(\frac{(1+f)^{LTC} - 1}{f} \right) \right) \div RSL$$

b. When unequal annual outpayments, the formula shall be expressed as;

$$PB = \left(\sum (R_x (1+f)^{RSL+x+c}) \right) \div RSL$$

in which:

- PB = the unknown bond or letter of credit amount for long-term care to increase per year of active facility life;
- i = the estimated annual rate of interest, expressed as a decimal
- f = the estimated annual rate of inflation, expressed as a decimal
- (f + .02) = the estimated rate of inflation plus 2% expressed as a decimal
- R = the estimated annual costs;
- R_x = the estimated unequal annual costs
- LTC = the long-term care period
- RSL = the estimated remaining life of the facility in years rounded to the nearest whole number
- x = the year of the long-term care;
- c = the closure period as a fraction of one year, expressed as a decimal
- Σ = the sum from year 1 through the last year of LTC

3. Insurance to cover long-term care. The rate of outpayment shall be as specified in subd. 1.

a. When equal annual outpayments are used, the formula shall be:

$$INS = \left(R (1+f)^{RSL+1+c} \left(\frac{(1+f)^{LTC} - 1}{f} \right) \right)$$

When unequal annual outpayments are used, the formula shall be:

$$INS = \left(\sum (R_x (1+f)^{RSL+x+c}) \right)$$

in which:

- INS = the unknown amount of the long-term care insurance
- f = the estimated annual rate of inflation, expressed as a decimal
- RSL = the estimated remaining active life of the facility in years
- R = the estimated annual costs
- R_x = the estimated unequal annual costs
- LTC = the long-term care period
- x = the year of long-term care
- c = the closure period as a fraction of a year, expressed as a decimal
- Σ = the sum of year 1 through the last year of LTC

(d) Adjustments. The owner shall submit to the department proof of the increase in the amount of all bonds, letters of credit, escrow accounts, trust accounts and insurance established under this section:

1. Annually, to account for increases in cost estimates based on adjustments for inflation; or
2. Within 60 days after a new cost estimate submitted in accordance with sub. (3)(b) or (4)(b) is approved by the department.

(8) **ACCESS AND DEFAULT**. Whenever on the basis of any reliable information, and after opportunity for hearing, the department determines that an owner or operator of a hazardous waste facility is in violation of any of the requirements for closure or long-term care specified in the approved plan of operation, or if no approved plan of operation exists, in s. NR 685.05 or 685.06, the department and its designees shall have the right to enter upon the facility and carry out the closure or long-term care requirements. The department may use part or all of the money deposited with it, or the money deposited in escrow or trust accounts, or performance or forfeiture bonds, or letters of credit, or funds accumulated under other approved methods to carry out the closure or long-term care requirements.

(9) **AUTHORIZATION TO RELEASE FUNDS**. (a) Closure. When an owner or operator has completed final or partial closure, the owner may apply to the department for release of a bond or letter of credit or return of money held on deposit, in escrow, or in trust for closure of the facility. The application shall consist of the certification and other submittals required under s. NR 685.05(9) and an itemized list of costs incurred. Upon determination by the department that complete closure has been accomplished, the department shall in writing authorize release and return of all funds accumulated in the accounts or give written permission for cancellation of a bond, letter of credit or insurance. Determinations shall be made within 60 days of the application.

(b) Long-term care. One year after final or partial closure, and annually thereafter for the period of owner responsibility, the owner, who has carried out all necessary long-term care during the preceding year, may make application to the department for reimbursement from an escrow account, trust account, deposit with the department, or other approved methods, or for reduction of the bond, insurance or letter of credit equal to the estimated costs for long-term care for that year. The application shall be accompanied by an itemized list of costs incurred. Upon determination that the expenditures incurred are in accordance with the long-term care requirements anticipated in the approved plan of operation or, if no approved plan of

operation exists, are in accordance with the requirements in s. NR 685.06, the department may authorize in writing the release of the funds or approve a reduction in the bond or letter of credit. Prior to authorizing a release of the funds or a reduction of the bond or letter of credit, the department shall determine that adequate funds exist to complete required long-term care work for the remaining period of owner responsibility. The department may authorize the release of any funds remaining in an escrow account, trust account, or on deposit with the department at the termination of the period of owner responsibility to the owner based on a determination made on a final application for reimbursement. The final application shall consist of the certification required under s. NR 685.06(11) and an itemized list of costs incurred. Determinations shall be made within 60 days of any application for reimbursement under this paragraph.

(10) INCAPACITY OF OWNERS OR OPERATORS, OR FINANCIAL INSTITUTIONS. (a) Owner or operator bankruptcy. The owner or operator of a hazardous waste facility shall notify the department by certified mail of the commencement of a voluntary or involuntary proceeding under the bankruptcy code, 11 USC 101, et seq., naming the owner or operator as debtor, within 10 days after commencement of the proceeding.

(b) Financial institution or trustee bankruptcy. An owner or operator who fulfills the requirements for financial responsibility by obtaining an irrevocable trust, surety bond, letter of credit, escrow account, or insurance policy shall be deemed to be without the required proof of financial responsibility in the event of bankruptcy of the trustee or issuing institution, or a suspension or a revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit or insurance policy to issue the instruments. The owner or operator shall establish other proof of financial responsibility within 30 days after the event.

NR 685.08 LIABILITY REQUIREMENTS. (1) **COVERAGE FOR SUDDEN ACCIDENTAL OCCURRENCES.** The owner or operator of every hazardous waste facility, or group of hazardous waste facilities, located in Wisconsin, except facilities owned and operated by a state agency or a federal agency, department or instrumentality, shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the facility or group of in-state facilities. The owner or operator shall have and maintain liability coverage for sudden accidental occurrences in the amount of at least \$1 million per occurrence with an annual aggregate of at least \$2 million, exclusive of legal defense costs. This liability coverage may be demonstrated as specified in sub. (3).

(2) **COVERAGE FOR NONSUDDEN ACCIDENTAL OCCURRENCES.** The owner or operator of every hazardous waste surface impoundment, landfill or surface impoundment with discharges regulated under ch. 147, Stats., or group of the facilities, located in Wisconsin, except facilities owned and operated by a state agency, or a federal agency, department or instrumentality, shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by nonsudden accidental occurrences arising from operations of the facility or group of the facilities. The owner or operator shall have and maintain liability coverage for nonsudden accidental occurrences in the amount of at least \$3 million per occurrence with an annual aggregate of at least \$6 million, exclusive of legal defense costs. An owner or operator subject to the requirements of this section may combine the required per occurrence coverage levels for sudden and nonsudden accidental occurrences into a single per-occurrence level and combine the required annual aggregate coverage levels for sudden and nonsudden accidental occurrences into a single annual aggregate level. Owners or operators who combine coverage levels for sudden and nonsudden accidental occurrences shall maintain liability coverage in the amount of at least \$4 million per occurrence and \$8 million annual aggregate. This liability coverage may be demonstrated as specified in sub. (3).

(3) **DEMONSTRATION OF COVERAGE.** The owner or operator shall demonstrate the financial responsibility required under subs. (1) and (2) in one of the following ways:

(a) The owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph. Each insurance policy shall be amended by attachment of a hazardous waste

facility liability endorsement or evidenced by a certificate of liability insurance. The wording of an endorsement shall be identical to the wording specified in sub. (7). The wording of a certificate of insurance shall be identical to the wording specified in sub. (7). At a minimum, the agent or broker shall be licensed as a surplus lines insurance agent or broker. The department shall determine the acceptability of a surplus lines insurance company to provide coverage for both sudden and nonsudden accidental occurrences. The department shall base the determination on any evaluations prepared, in accordance with s. 618.41(6)(d), Stats., by the office of the commissioner of insurance.

(b) An owner or operator may demonstrate the required liability coverage by passing a financial test or using the guarantee for liability coverage as specified in subs. (8) and (9).

(c) An owner or operator may demonstrate the required liability coverage by obtaining a letter of credit for liability coverage as specified in sub. (10).

(d) An owner or operator may demonstrate the required liability coverage by obtaining a surety bond for liability coverage as specified in sub. (11).

(e) An owner or operator may demonstrate the required liability coverage by obtaining a trust fund for liability coverage as specified in sub. (12).

(f) An owner or operator may demonstrate the required liability coverage through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement of the guarantor. The amounts of coverage demonstrated shall total at least the minimum amounts required by this section. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this subsection, the owner or operator shall specify at least one assurance as "primary" coverage and shall specify other assurance as "excess" coverage.

(g) An owner or operator shall notify the department in writing within 30 days whenever:

1. A claim for bodily injury or property damages caused by the operation of a hazardous waste treatment, storage or disposal facility is made against the owner or operator or an instrument providing proof of financial responsibility assurance for liability coverage under this section; and

2. The amount of proof of financial responsibility for liability coverage under this section provided by a financial instrument authorized by paragraphs (a) to (f) is reduced.

(4) PERIOD OF COVERAGE. Paragraph (a) applies to owners or operators who obtain liability insurance in accordance with sub. (7). Paragraph (b) applies to owners and operators who use the financial test or guarantee to demonstrate liability coverage, and obtain department approval of the financial test or guarantee, in accordance with subs. (8) and (9). Paragraph (c) applies to owners and operators who use a letter of credit, surety bond or trust fund to demonstrate liability coverage, in accordance with subs. (10) to (12).

(a) The owner or operator shall continuously provide liability insurance as required by this section until the department authorizes cancellation of the policy or policies as provided herein. If the insurance company becomes bankrupt or insolvent or if the company receives an unfavorable evaluation under s. 618.41(6)(d), Stats., the owner or operator shall, within 30 days after receiving written notice thereof, deliver to the department demonstration of liability coverage as required by sub. (3). When an owner or operator has completed closure in accordance with s. NR 680.60, the owner or operator may apply to the department for authorization to cancel the liability insurance required by this section. This application may be made jointly with the application necessary for the release of proof of financial responsibility for closure under s. NR

685.07. Upon determination by the department that closure has been completed in accordance with s. NR 680.60, the department shall authorize the owner to cancel any liability insurance required under this section. The department shall approve or deny the application within 60 days of receipt of the application.

(b) The owner or operator shall continuously provide liability coverage as required by this section until the owner or operator has completed closure in accordance with s. NR 680.60, and the department approves of the closure certification required to be submitted under s. NR 685.05. The department shall approve or deny the certification within 60 days of receipt of the closure certification.

(c) The owner or operator shall continuously provide liability coverage as required by this section until the department authorizes the owner or operator to request the release of the letter of credit, or surety bond, or return of money held in trust, for liability coverage. When an owner or operator has completed closure in accordance with s. NR 680.60, the owner or operator may apply to the department for authorization to request the release of the letter of credit or surety bond or return of money held in trust for liability coverage. This application may be made jointly with the application necessary for the release of proof of financial responsibility for closure under s. NR 685.07(9). Upon determination by the department that closure has been completed in accordance with s. NR 680.60, the department shall authorize the owner or operator to request the release of the letter of credit or surety bond or return of money held in trust for liability coverage required under this section. The department shall approve or deny the application within 60 days of the receipt of the application.

(5) REQUIRED SUBMITTALS. (a) The owner or operator of a facility that has obtained a variance under s. NR 680.50 or obtained or applied for an interim license shall submit to the department:

1. The signed duplicate original of the hazardous waste facility liability endorsement or the certificate of liability insurance in accordance with sub. (7). If requested by the department, the owner or operator shall provide a signed duplicate original of all insurance policies; or

2. The items specified under sub. (8); or

3. The items specified under sub. (9); or

4. The signed duplicate original of a letter of credit as specified in sub. (10); or

5. The signed duplicate original of a surety bond as specified in sub. (11); or

6. The signed duplicate original of the trust agreement as specified in sub. (12).

(b) The owner or operator of a proposed facility shall submit to the department as part of the initial operating license submittal:

1. The signed duplicate original of the hazardous waste facility liability endorsement or the certificate of liability insurance in accordance with sub. (7). If requested by the department, the owner or operator shall provide a signed duplicate original of all insurance policies; or

2. The items specified under sub. (8); or

3. The items specified under sub. (9); or

4. The signed duplicate original of the letter of credit as specified in sub. (10); or

5. The signed duplicate original of the surety bond as specified in sub. (11), or

6. The signed duplicate original of the trust agreement as specified in sub. (12).

(c) The owner or operator of an existing facility which has not obtained an interim license due to the withdrawal or denial of the interim license application or which no longer has an interim license or a variance, and has not received a written determination from the department that closure was completed in accordance with s. NR 680.60, shall either:

1. Submit to the department:

a. The signed duplicate original of the hazardous waste facility liability endorsement or the certificate of liability insurance in accordance with sub. (7). If requested by the department, the owner or operator shall provide a signed duplicate original of all insurance policies; or

b. The items specified under sub. (8); or

c. The items specified under sub. (9); or

d. The signed duplicate original of the letter of credit as specified in sub. (10); or

e. The signed duplicate original of the surety bond as specified in sub. (11); or

f. The signed duplicate original of the trust agreement as specified in sub. (12); or shall

2. Apply for department authorization to cancel the liability requirement in accordance with sub. (4) provided that closure has been completed in accordance s. NR 680.60.

(6) ADJUSTMENTS BY THE DEPARTMENT. If the department determines that the levels of coverage required by subs. (1) and (2) are not consistent with the degree and duration of risk associated with treatment, storage or disposal at the facility or group of in-state facilities, the department may adjust the level of coverage required under subs. (1) and (2) as may be necessary to protect human health and the environment. This adjusted level will be based on the department's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of in-state facilities. In addition, if the department determines that there is a significant risk to human health or the environment from nonsudden accidental occurrences resulting from the operations of a facility that is not a surface impoundment or landfill, the owner or operator may be required to comply with sub. (2). An owner or operator shall furnish to the department, within a reasonable time, any information which the department requests to determine whether cause exists for the adjustments of level or type of coverage.

(7) ENDORSEMENTS AND CERTIFICATE WORDING. (a) A hazardous waste facility liability endorsement as required in sub. (3) shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

HAZARDOUS WASTE FACILITY LIABILITY ENDORSEMENT

This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering bodily injury and property damage in connection with the insured's obligation to demonstrate financial responsibility under s. NR 685.08, Wis. Adm. Code. The coverage applies at [list EPA Identification Number, name and address for each facility] for [insert "sudden accidental occurrences", "nonsudden accidental occurrences" or "sudden and nonsudden accidental occurrences", if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences, and which are insured for both]. The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the insurer's liability], exclusive of legal defense costs.

The insurance afforded with respect to the occurrences is subject to all of the terms and conditions of the policy; if, however, that any provisions of the policy inconsistent with the provisions of this endorsement stated below are hereby amended to conform with this endorsement.

Bankruptcy or insolvency of the insured may not relieve the Insurer of its obligations under the policy to which this endorsement is attached.

The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any payment made by the insurer.

Whenever requested by the Department of Natural Resources (DNR) the Insurer agrees to furnish to the DNR a signed duplicate original of the policy and all endorsements.

Cancellation of this endorsement, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, shall be effective only upon written notice and only after the expiration of 60 days after a copy of the written notice is received by the DNR.

Any other termination of this endorsement shall be effective only upon written notice and only after the expiration of thirty (30) days after a copy of the written notice is received by the DNR.

Attached to and forming part of policy No. _____ issued by [name of Insurer], herein called the Insurer, of [address of Insurer] to [name of insured] of [address] this _____ day of _____, 19___. The effective date of said policy is _____ day of _____, 19__.

I hereby certify that the wording of this endorsement is identical to the wording specified in s. NR 685.08(7), Wis. Adm. Code, as was constituted on the date first above written, and that the agent or broker is licensed as a surplus lines insurance agent or broker.

[Signature of Authorized Representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of insurer]

[Address of Representative]

(b) A certificate of liability insurance as required in sub. (3) shall be worded as follows, except that the instruction in brackets are to be replaced with the relevant information and the brackets deleted:

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

[Name of Insurer], (the "Insurer"), of [address of Insurer] hereby certifies that it has issued liability insurance covering bodily injury and property damage to [name of insured], (the "insured"), of [address of insured] in connection with the insured's obligation to demonstrate financial responsibility under s. NR 685.08, Wis. Adm. Code. The coverage applies at [list EPA Identification Number, name, and address for each facility] for [insert "sudden accidental occurrences", "nonsudden accidental occurrences" or "sudden and nonsudden accidental occurrences"]; if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences, and which are insured for both]. The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's liability], exclusive of legal defense costs. The coverage is provided under policy number _____, issued on [date]. The effective date of the policy is [date].

The Insurer further certifies the following with respect to the insurance described above:

Bankruptcy or insolvency of the insured may not relieve the Insurer of its obligations under the policy.

The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any payment made by the Insurer. This provision does not apply with respect to that amount any deductible for which coverage is demonstrated as specified in s. NR 685.08(8), Wis. Adm. Code.

Whenever requested by the Department of Natural Resources (DNR) the Insurer agrees to furnish to the DNR a signed duplicate original of the policy and all endorsements.

Cancellation of the insurance, whether by the insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, shall be effective only upon written notice and only after the expiration of 60 days after a copy of the written notice is received by the DNR.

Any other termination of the insurance shall be effective only upon written notice and only after the expiration of thirty (30) days after a copy of the written notice is received by the DNR.

I hereby certify that the wording of this instrument is identical to the wording specified in s. NR 685.08(7), Wis. Adm. Code, as the regulation was constituted on the date first above written, and that the agent or broker is licensed as a surplus lines insurance agent or broker.

[Signature of Authorized Representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of Insurer]

[Address of Representative]

(8) FINANCIAL TEST FOR LIABILITY COVERAGE. The owner or operator may satisfy the requirements of this section by demonstrating that the owner or operator passes a financial test as specified in this subsection. To pass this test the owner or operator shall meet the criteria of par. (a) or (b).

(a) The owner or operator has:

1. Net working capital and tangible net worth each at least 6 times the amount of liability coverage to be demonstrated by this test;

2. Tangible net worth of at least \$10 million; and

3. Assets in the United States amounting to either at least 90% of the owner's or operator's total assets or at least 6 times the amount of liability coverage to be demonstrated by this test.

(b) The owner or operator has:

1. A current rating for the most recent bond issuance of AAA, AA, A, or BBB as issued by Standard and Poor's, or Aaa, Aa, A, or Baa as issued by Moody's;

2. Tangible net worth of at least \$10 million;

3. Tangible net worth at least 6 times the amount of liability coverage to be demonstrated by this test; and

4. Assets in the United States amounting to either at least 90% of the owner's or operator's total assets or at least 6 times the amount of liability coverage to be demonstrated by this test.

(c) The phrase "amount of liability coverage" as used in this subsection refers to the annual aggregate amounts for which coverage is required under subs. (1) and (2).

(d) The owner or operator shall submit the following 3 items to the department to demonstrate that this test is met:

1. A letter signed by the owner or operator's chief financial officer as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

[Address to the department]

I am the chief financial officer of [owner or operator's name and address]. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage [insert "and closure or long-term care", if applicable] as specified in s. NR 685.08(8), Wis. Adm. Code.

[Fill out the following paragraphs regarding facilities and liability coverage. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its EPA Identification Number, name and address.]

The firm identified above is the owner or operator of the following facilities for which liability coverage for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences is being demonstrated through the financial test specified in s. NR 685.08, Wis. Adm. Code.

The firm identified above guarantees, through the guarantee specified in s. NR 685.08, liability coverage for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences at the following facilities owned or operated by the following:_____. The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee :_____; or (3) engaged in the following substantial business relationship with the owner or operator:_____, and receiving the following value in consideration of this guarantee:_____.] [Attach a written description of the business relationship or a copy of the contract establishing the relationship to this letter.]

This owner or operator [insert "is required" or "is not required"] to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this owner or operator ends on [month, day]. The figures for the following items marked with an asterisk are derived from this owner or operator's independently audited, year-end financial statements for the latest completed fiscal year ended [date].

LIABILITY COVERAGE FOR ACCIDENTAL OCCURRENCES

[Fill in Alternative I if the criteria of s. NR 685.08(8)(a), Wis. Adm. Code are used. Fill in Alternative II if the criteria of s. NR 685.08(8)(b), Wis. Adm. Code are used].

ALTERNATIVE I

1. Amount of annual aggregate liability coverage to be demonstrated \$
- *2. Current assets \$
- *3. Current liabilities \$
4. Net working capital (line 2 minus line 3) \$
- *5. Tangible net worth \$
- *6. If less than 90% of assets are located in the U.S., give total U.S. assets \$

YES NO

7. Is line 5 at least \$10 million?
8. Is line 4 at least 6 times line 1?
9. Is line 5 at least 6 times line 1?
- *10. Are at least 90% of assets located in the U.S.? If not, complete line 11.
11. Is line 6 at least 6 times line 1?

ALTERNATIVE II

1. Amount of annual aggregate liability coverage to be demonstrated \$
2. Current bond rating of most recent issuance and name of rating service
3. Date of issuance of bond
4. Date of maturity of bond
- *5. Tangible net worth \$
- *6. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) \$

YES NO

7. Is line 5 at least \$10 million?
8. Is line 5 at least 6 times line 1?

*9. Are at least 90% of assets located in the U.S.?
If not, complete line 10.

10. Is line 6 at least 6 times line 1?

I hereby certify that the wording of this letter is identical to the wording specified in Section NR 685.08(8)(d)1., Wis. Adm. Code, as the regulations were constituted on the date shown immediately below.

[Signature]

[Name]

[Title]

[Date]

2. A copy of the independent certified public accountant's report on examination of the owner or operator's financial statements for the latest completed fiscal year.

3. A special report from the owner or operator's independent certified public accountant to the owner or operator stating that the accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in the financial statements; and in connection with that procedure, no matter came to the accountant's attention which caused the accountant to believe that the specified data should be adjusted.

(e) The owner or operator of a proposed facility shall submit the items specified in par. (d) in accordance with sub. (5).

(f) After the initial submission of items specified in par. (d), the owner or operator shall send updated information to the department within 90 days after the close of each succeeding fiscal year. This information shall consist of all 3 items specified in par. (d).

(g) If the owner or operator no longer meets the requirements of par. (a) or (b), the owner or operator shall obtain alternate liability coverage in one of the ways specified in s. NR 685.08(3) for the entire amount of required coverage as specified in this section. Evidence of alternate liability coverage shall be submitted to the department 90 days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the requirements of par. (a) or (b).

(h) The department may allow or disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in the accountant's report on examination of the owner or operator's financial statements. An adverse opinion or a disclaimer of opinion shall be cause for disallowance. The department shall evaluate other qualifications on an individual basis. The owner or operator shall provide evidence of insurance for the entire amount of required liability coverage as specified in this section within 30 days after notification of disallowance.

(i) If the department has reason to believe that a facility no longer meets the financial test requirements, the department may require the facility to submit information and materials to show compliance at any time.

(9) GUARANTEE FOR LIABILITY COVERAGE. (a) Subject to sub. (9)(b) of this section, an owner or operator may meet the requirements of this section by obtaining a written guarantee, hereinafter referred to as "guarantee". The guarantor shall be the direct or higher-tier parent corporation of the owner or operator,

a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor shall meet the requirements for owners or operators in sub. (8)(a) to (f). The wording of the guarantee shall be identical to the wording specified in par. (c). A certified copy of the guarantee shall accompany the items sent to the department as specified in sub. (8)(d). One of these items shall be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, this letter shall describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter shall describe this "substantial business relationship" and the value received in consideration of the guarantee.

1. If the owner or operator fails to satisfy a judgment based on a determination of liability for bodily injury or property damage to third parties caused by sudden or nonsudden accidental occurrences, or both as the case may be, arising from the operation of facilities covered by this guarantee, or fails to pay an amount agreed to in settlement of claims arising from or alleged to arise from injury or damage, the guarantor shall do so up to the limits of coverage.

2. The guarantee shall remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the department. This guarantee may not be terminated unless and until the department approves alternate liability coverage complying with s. NR 685.08.

(b)1. In the case of corporations incorporated in the United States, a guarantee may be used to satisfy the requirements of this section only if the attorneys general or insurance commissioners of:

a. The state in which the guarantor is incorporated, and

b. Wisconsin have submitted a written statement to the department that a guarantee executed as described in this section is a legally valid and enforceable obligation in that state.

2. In the case of corporations incorporated outside the United States, a guarantee may be used to satisfy the requirements of this section only if:

a. The non-U.S. corporation has identified a registered agent for service of process in Wisconsin and in the state in which it has its principal place of business, and

b. The attorney general or insurance commissioner of Wisconsin and the state in which the guarantor corporation has its principal place of business, has submitted a written statement to the department that a guarantee executed as described in this section is a legally valid and enforceable obligation in that state.

(c) A guarantee, as specified in this subsection, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Guarantee for Liability Coverage

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of [if incorporated within the United States insert "the State of --" and insert name of state; if incorporated outside the United States insert the name of the country in which incorporated, the principal place of business within the United States, and the name and address of the registered agent in the state of the principal place of business], herein referred to as guarantor. This guarantee is made on behalf of our subsidiary [owner or operator] of [business address], to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in s. NR 685.08(9).

2. [Owner or operator] owns or operates the following hazardous waste management facility(ies) covered by this guarantee: [List for each facility: EPA Identification Number, name, and address; and if guarantor is incorporated outside the United States list the name and address of the guarantor's registered agent in each state.] This guarantee satisfies third-party liability requirements for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences as specified in s. NR 685.08, Wis. Adm. Code in above-named owner or operator facilities for coverage in the amount of [insert dollar amount] for each occurrence and [insert dollar amount] annual aggregate.

3. For value received from [owner or operator], guarantor guarantees to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden or nonsudden] accidental occurrences arising from operations of the facility(ies) covered by this guarantee that in the event that [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by [sudden or nonsudden] accidental occurrences, arising from the operation of the above-named facilities, or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from injury or damage, the guarantor shall satisfy the judgment(s), award(s) or settlement agreement(s) up to the limits of coverage identified above.

4. The obligation does not apply to any of the following:

a. Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert owner or operator] would be obligated to pay in the absence of the contract or agreement.

b. Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

c. Bodily injury to:

1) An employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator]; or

2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert owner or operator]. This exclusion applies:

a) Whether [insert owner or operator] may be liable as an employer or in any other capacity; and

b) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs 1) and 2).

d. Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

e. Property damage to:

1) Any property owned, rented, or occupied by [insert owner or operator];

2) Premises that are sold, given away or abandoned by [insert owner or operator] if the property damage arises out of any part of those premises;

3) Property loaned to [insert owner or operator];

4) Personal property in the care, custody or control of [insert owner or operator];

5) That particular part of real property on which [insert owner or operator] or any contractors or subcontractors working directly or indirectly on behalf of [insert owner or operator] are performing operations, if the property damage arises out of these operations.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the department and to [owner or operator] that he intends to provide alternate liability coverage as specified in s. NR 685.08, Wis. Adm. Code, as applicable, in the name of [owner or operator]. Within 120 days after the end of the fiscal year, the guarantor shall establish the liability coverage unless [owner or operator] has done so.

6. The guarantor agrees to notify the department by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by the department of a determination that guarantor no longer meets the financial test criteria or that the guarantor is disallowed from continuing as a guarantor, shall establish alternate liability coverage as specified in s. NR 685.08, Wis. Adm. Code in the name of [owner or operator], unless [owner or operator] has done so.

8. Guarantor reserves the right to modify this agreement to take into account amendment or modification of the liability requirements set by s. NR 685.08, Wis. Adm. Code, if the modification shall become effective only if the department does not disapprove the modification within 30 days of receipt of notification of the modification.

9. Guarantor agrees to remain bound under this guarantee for so long as [owner or operator] shall comply with the applicable requirements of s. NR 685.08, Wis. Adm. Code for the above-listed facility(ies), except as provided in paragraph 10 of this agreement.

10. [Insert the following language if the guarantor is (a) a direct or higher-tier corporate parent, or (b) a firm whose parent corporation is also the parent corporation of the owner or operator]:

Guarantor may terminate this guarantee by sending notice by certified mail to the Department and to [owner or operator], provided that this guarantee may not be terminated unless and until [the owner or operator] obtains, and the Department approves, alternate liability coverage complying with s. NR 685.08 Wis. Adm. Code.

[Insert the following language if the guarantor is a firm qualifying as a guarantor due to its "substantial business relationship" with the owner or operator]:

Guarantor may terminate this guarantee 120 days following receipt of notification, through certified mail, by the Department and by [the owner or operator].

11. Guarantor hereby expressly waives notice of acceptance of this guarantee by any party.

12. Guarantor agrees that this guarantee is in addition to and does not affect any other responsibility or liability of the guarantor with respect to the covered facilities.

13. The Guarantor shall satisfy a third-party liability claim only on receipt of one of the following documents:

(a) Certification from the Principal and the third-party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Principal] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of \$[].

[Signatures]

Principal

(Notary) Date

[Signatures]

Claimant(s)

(Notary) Date

(b) A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Principal's facility or group of facilities.

14. In the event of combination of this guarantee with another mechanism to meet liability requirements, this guarantee shall be considered [insert "primary" or "excess"] coverage.

I hereby certify that the wording of the guarantee is identical to the wording specified in s. NR 685.08(9)(c), Wis. Adm. Code, as the regulations were constituted on the date shown immediately below.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness of notary:

(10) LETTER OF CREDIT FOR LIABILITY COVERAGE. (a) An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit that conforms to the requirements of this subsection and submitting a copy of the letter of credit to the department.

(b) The financial institution issuing the letter of credit shall be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency.

(c) The wording of the letter of credit shall be identical to the wording specified in par. (d).

(d) A letter of credit, as specified in this subsection, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Irrevocable Standby Letter of Credit

Name and Address of Issuing Institution

Secretary

Wisconsin Department of Natural Resources

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. ____ in the favor of any and all third-party liability claimants, at the request and for the account of [owner's or operator's name and address] for third-party liability awards or settlements up to [in words] U.S. dollars \$____ per occurrence and the annual aggregate amount of [in words] U.S. dollars \$____, for sudden accidental occurrences and/or for third-party liability awards or settlements up to the amount of [in words] U.S. dollars \$____ per occurrence, and the annual aggregate amount of [in words] U.S. dollars \$____, for nonsudden accidental occurrences available upon presentation of a sight draft, bearing reference to this letter of credit No. ____, and

(A) a signed certificate reading as follows:

Certification of Valid Claim

The undersigned, as parties [insert principal] and [insert name and address of third-party claimants], hereby certify that the claim of bodily injury [and/or] property damage caused by a [sudden or nonsudden] accidental occurrence arising from operations of [principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of \$____. We hereby certify that the claim does not apply to any of the following:

(1) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(2) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(3) Bodily injury to:

(a) An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

(b) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal].

This exclusion applies:

1. Whether [insert principal] may be liable as an employer or in any other capacity; and

2. To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (a) and (b).

(4) Bodily injury or property damage arising out of the ownership, maintenance, use or entrustment to others of any aircraft, motor vehicle or watercraft.

(5) Property damage to:

(a) Any property owned, rented or occupied by [insert principal];

(b) Premises that are sold, given away or abandoned by [insert principal] if the property damage arises out of any part of those premises;

(c) Property loaned to [insert principal];

(d) Personal property in the care, custody or control of [insert principal];

(e) That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

[Signatures]

Principal

[Signatures]

Claimant(s)

or

(B) a valid final court order establishing a judgment against the principal for bodily injury or property damage caused by a sudden or nonsudden accidental occurrence arising from operation of the principal's facility or group of facilities.

This letter of credit is effective as of [date] and shall expire on [date at least one year later], but the expiration date shall be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify you, the Wisconsin Department of Natural Resources, and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor the draft upon presentation to us.

In the event that this letter of credit is used in combination with another mechanism for liability coverage, this letter of credit shall be considered [insert "primary" or "excess"] coverage.

We certify that the wording of this letter of credit is identical to the wording specified in s. NR 685.08(10)(d), Wis. Adm. Code, as the regulations were constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution]

[Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce" or "the Uniform Commercial Code"].

(11) SURETY BOND FOR LIABILITY COVERAGE. (a) An owner or operator may satisfy the requirements of this section by obtaining a surety bond that conforms to the requirements of this subsection and submitting a copy of the bond to the department.

(b) The surety company issuing the bond shall be authorized to do business in Wisconsin.

(c) The wording of the surety bond shall be identical to the wording specified in par. (e).

(d) A surety bond may be used to satisfy the requirements of this section only if the attorneys general or insurance commissioners of;

1. The state in which the surety is incorporated, and

2. Wisconsin, have submitted a written statement to the department that a surety bond executed as described in this section is a legally valid and enforceable obligation in that state.

(e) A surety bond, as specified in this subsection, shall be worded as follows: except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Payment Bond

Surety Bond No. [Insert number]

Parties [Insert name and address of owner or operator], Principal, incorporated in [Insert state of incorporation] of [Insert city and state of principal place of business] and [Insert name and address of surety company(ies)], Surety Company(ies), of [Insert surety(ies) place of business].

EPA Identification Number, name, and address for each facility guaranteed by this bond: _____

	Sudden accidental occurrences	Nonsudden accidental occurrences
Penal Sum Per Occurrence	[insert amount]	[insert amount]
Annual Aggregate	[insert amount]	[insert amount]

Purpose: This is an agreement between the Surety(ies) and the Principal under which the Surety(ies), its(their) successors and assignees, agree to be responsible for the payment of claims against the Principal for bodily injury and/or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental occurrences arising from operations of the facility or group of facilities in the sums prescribed herein; subject to the governing provisions and the following conditions.

Governing Provisions:

(1) Rules and Regulations of the Wisconsin Department of Natural Resources, particularly s. NR 685.08, Wis. Adm. Code.

(2) Title 42 of the United States Code, section 6924.

Conditions:

(1) The Principal is subject to the applicable governing provisions that require the Principal to have and maintain liability coverage for bodily injury and property damage to third parties caused by ["sudden"

and/or "nonsudden"] accidental occurrences arising from operations of the facility or group of facilities. The obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or similar law.

(c) Bodily injury to:

1. An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

2. The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal]. This exclusion applies:

a. Whether [insert principal] may be liable as an employer or in any other capacity; and

b. To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraph (c)1. and 2.

(d) Bodily injury or property damage arising out of the ownership, maintenance, use or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

1. Any property owned, rented or occupied by [insert principal];

2. Premises that are sold, given away or abandoned by [insert principal] if the property damage arises out of any part of those premises;

3. Property loaned to [insert principal];

4. Personal property in the care, custody or control of [insert principal];

5. That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

(2) This bond assures that the Principal shall satisfy valid third party liability claims, as described in condition 1.

(3) If the Principal fails to satisfy a valid third party liability claim, as described above, the Surety(ies) becomes liable on this bond obligation.

(4) The Surety(ies) shall satisfy a third party liability claim only upon the receipt of one of the following documents:

(a) Certification from the Principal and the third party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert name of Principal] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Principal's] hazardous waste treatment, storage or disposal facility should be paid in the amount of \$[].

[Signature]

Principal

[Notary] Date

[Signature(s)]

Claimant(s)

[Notary] Date

or (b) A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Principal's facility or group of facilities.

(5) In the event of combination of this bond with another mechanism for liability coverage, this bond shall be considered [insert "primary" or "excess"] coverage.

(6) The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until the payment or payments shall amount in the aggregate to the penal sum of the bond. In no event shall the obligation of the Surety(ies) hereunder exceed the amount of said annual aggregate penal sum, provided that the Surety(ies) furnish(es) notice to the Department forthwith of all claims filed and payments made by the Surety(ies) under this bond.

(7) The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and the Department, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by the Principal and the Department, as evidenced by the return receipt.

(8) The Principal may terminate this bond by sending written notice to the Surety(ies) and to the Department.

(9) The Surety(ies) hereby waive(s) notification of amendments to applicable laws, statutes, rules and regulations and agree(s) that no amendment shall in any way alleviate its (their) obligation on this bond.

(10) This bond is effective from [insert date] (12:01 a.m., standard time, at the address of the Principal as stated herein) and shall continue in force until terminated as described above.

In Witness Whereof, the Principal and Surety(ies) have executed this Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in s. NR 685.08(11), Wis. Adm. Code, as the regulations were constituted on the date this bond was executed.

PRINCIPAL

[Signature(s)]

[Name(s)]

[Title(s)]

[Corporate Seal]

CORPORATE SURETY[IES]

[Name and address]

State of incorporation:

Liability Limit: \$

[Signature(s)]

[Name(s) and title(s)]

[Corporate seal]

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: \$

(12) TRUST FUND FOR LIABILITY COVERAGE. (a) An owner or operator may satisfy the requirements of this section by establishing a trust fund that conforms to the requirements of this subsection and submitting an originally signed duplicate of the trust agreement to the department.

(b) The trustee shall be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

(c) The trust fund for liability coverage shall be funded for the full amount of the liability coverage to be provided by the trust fund before it may be relied upon to satisfy the requirements of this section. If at any time after the trust fund is created the amount of funds in the trust fund is reduced below the full amount of the liability coverage to be provided, the owner or operator, by the anniversary date of the establishment of the fund, shall either add sufficient funds to the trust fund to cause its value to equal the full amount of liability coverage to be provided, or obtain other financial assurance as specified in this section to cover the difference. For purposes of this subsection, "the full amount of the liability coverage to be provided" means the amount of coverage for sudden or nonsudden occurrences or both required to be provided by the owner or operator by this subsection, less the amount of proof of financial responsibility for liability coverage that is being provided by other financial assurance mechanisms being used to demonstrate proof of financial responsibility by the owner or operator.

(d) The wording of the trust fund shall be identical to the wording specified in par. (e).

(e)1. A trust agreement, as specified in this subsection, shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Trust Agreement

Trust Agreement, the "Agreement", entered into as of [date] by and between [name of the owner or operator] a [name of State] [insert "corporation", "partnership", "association", or "proprietorship"], the "Grantor" and [name of corporate trustee], [insert, "incorporated in the State of ____" or "a national bank"], the "trustee".

Whereas, the Wisconsin Department of Natural Resources, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility or group of facilities shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental and/or nonsudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the Grantor has elected to establish a trust to assure all or part of the financial responsibility for the facilities identified herein.

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities. This agreement pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the EPA Identification Number, name and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, hereinafter the "Fund", for the benefit of any and all third parties injured or damaged by [sudden and/or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee, in the amounts of [up to \$1 million] per occurrence and [up to \$2 million] annual aggregate for sudden accidental occurrences and [up to \$3 million] per occurrence and [up to \$6 million] annual aggregate for nonsudden occurrences, except that the Fund is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert Grantor] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert Grantor] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert Grantor] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert Grantor] arising from, and in the course of, employment by [insert Grantor];
or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert Grantor].

This exclusion applies:

(A) Whether [insert Grantor] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who shall pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented or occupied by [insert Grantor];

(2) Premises that are sold, given away or abandoned by [insert Grantor] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert Grantor];

(4) Personal property in the care, custody or control of [insert Grantor];

(5) That particular part of real property on which [insert Grantor] or any contractors or subcontractors working directly or indirectly on behalf of [insert Grantor] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the fund shall be considered [insert "primary" or "excess"] coverage.

The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. The property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the Department.

Section 4. Payment for Bodily Injury or Property Damage. The Trustee shall satisfy a third party liability claim by making payments from the Fund only upon receipt of one of the following documents;

(a) Certification from the Grantor and the third party claimant(s) that the liability claim should be paid. The certification shall be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Grantor] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Grantor's] hazardous waste treatment, storage or disposal facility should be paid in the amount of \$[].

[Signatures]

Grantor

[Signatures]

Claimant(s)

(b) A valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Grantor's facility or group of facilities.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence and diligence under the circumstance then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 USC 80a-2.(a), shall not be acquired or held unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common commingled, or collective trust fund created by the Trustee in which the fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 USC 81a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote the shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any sale or other disposition;

(b) To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing the securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for

the deposit of the securities in a qualified central depository even though, when so deposited, the securities may be merged and held in bulk in the name of the nominee of the depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a federal reserve bank, but the books and records of the Trustee shall at all times show that all the securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuations. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the Department, a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the Department shall constitute a conclusively binding assent by the Grantor barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but the resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the Department and the present Trustee by certified mail 10 days before the change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests and instructions by the Grantor to the Trustee shall be in writing, signed by the persons that are designated in the attached Exhibit A or other designees as the Grantor may designate by amendments to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and instructions. All orders, requests and instructions by the Department to the Trustee shall be in writing, signed by the Secretary of the Department, or the designee, and the Trustee shall act and shall be fully protected in acting in accordance with orders, requests and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to

act on behalf of the Grantor or the Department hereunder has occurred. The Trustee shall have no duty to act in the absence of orders, requests and instructions from the Grantor and/or the Department, except as provided for herein.

Section 15. Notice of Nonpayment. If a payment for bodily injury or property damage is made under Section 4 of this trust, the Trustee shall notify the Grantor of payment and the amount(s) thereof within five (5) working days. The Grantor shall, on or before the anniversary date of the establishment of the Fund following the notice, either make payments to the Trustee in amounts sufficient to cause the trust to return to its value immediately prior to the payment of claims under Section 4, or shall provide written proof to the Trustee that other financial assurance for liability coverage has been obtained equalling the amount necessary to return the trust to its value prior to the payment of claims. If the Grantor does not either make payments to the Trustee or provide the Trustee with proof, the Trustee shall, within 10 working days after the anniversary date of the establishment of the Fund, provide a written notice of nonpayment to the Department.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the Department, or by the Trustee and the appropriate Department, if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Department, or by the Trustee and the Department, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

The Department shall agree to termination of the Trust when the owner or operator substitutes alternate financial assurance as specified in this section.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the Department issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide a defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of Wisconsin.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in s. NR 685.08(12), Wis. Adm. Code, as the regulations were constituted on the date first above written.

[Signature of Grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of Trustee]

Attest:

[Title]

[Seal]

2. The following is an example of the certification of acknowledgement which shall accompany the trust agreement for a trust fund as specified in this subsection.

State of

County of

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to the instrument is the corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

[Signature of Notary Public]

(13) INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS OR FINANCIAL INSTITUTIONS.

(a) An owner or operator shall notify the department by certified mail of the commencement of a voluntary or involuntary proceeding under title 11 (bankruptcy), U.S. code, naming the owner or operator as debtor, within 10 days after commencement of the proceeding. A guarantor of a guarantee as specified in sub. (9) shall make a notification if the guarantor is named as debtor, as required under the terms of the guarantee sub. (9)(c).

(b) An owner or operator who fulfills the requirements of this section by obtaining a trust fund, surety bond, letter of credit or insurance policy shall be deemed to be without the required liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit, or insurance policy to issue the instruments. The owner or operator shall establish other liability coverage within 30 days after an event.

NR 685.09 ENVIRONMENTAL FEES. (1) **WASTE MANAGEMENT FUND.** All owners or operators of approved licensed hazardous waste land disposal facilities shall pay to the department a tonnage fee for each ton of hazardous waste or solid waste received and disposed of at the facility, or a minimum waste management fund base fee as specified in s. 144.441(5)(c), Stats., whichever is greater, until the facility no

longer receives waste and begins closure activities, except as otherwise provided in s. 144.441(3)(b) or (c), Stats. The department shall deposit all tonnage and waste management base fees into the waste management fund provided for in s. 25.45, Stats. The department may use the money accumulated in the waste management fund only at approved facilities. The monies in the waste management fund shall be expended exclusively as set forth in s. 144.441(6), Stats.

(a) For all approved hazardous waste land disposal facilities the owner or operator shall pay fees into the waste management fund in accordance with s. 144.441(4) or (5), Stats., whichever is greater.

(b) For those companies which have provided proof of financial responsibility by the net worth method under s. 144.443(4) and (8), Stats., the fees to be paid by the owner or operator into the waste management fund shall be in accordance with s. 144.441(4)(h) or (5), Stats., whichever fee is greater.

(c) For all nonapproved hazardous waste land disposal facilities, the total annual tonnage fees for all solid waste received by the facility shall be reduced by the amount of the environmental repair base fee. If the environmental repair base fee for a nonapproved facility is greater than the annual tonnage fee imposed under s. 144.441(4), Stats., the waste received by the facility is exempt from the waste management tonnage fee for that year.

(2) ENVIRONMENTAL REPAIR FUND. (a) All owners or operators of licensed hazardous waste land disposal facilities shall pay to the department an environmental repair fee for each ton of hazardous waste or solid waste received and disposed of at the facility, until the facility no longer receives waste and begins closure activities. The environmental repair fee shall be as specified in s. 144.442(1m)(c) and (cm), Stats.

(b) All licensed nonapproved facilities shall pay to the department an environmental repair base fee for each calendar year until the facility no longer receives waste and begins closure activities. The environmental repair base fees are specified in s. 144.442(2)(b), Stats. The environmental repair base fees may be reduced in accordance with s. 144.442(2)(d), Stats. The environmental repair surcharge is specified in s. 144.442(3), Stats.

(c) The department shall deposit all environmental repair fees, environmental repair base fees and environmental repair surcharge fees into the environmental repair fund provided for in s. 25.46, Stats. The monies in the environmental repair fund shall be expended exclusively as set forth in s. 144.442(6) and (6m), Stats.

(3) GROUNDWATER FUND. All owners or operators of licensed hazardous waste land disposal facilities shall pay to the department a groundwater fee for each ton of hazardous waste or solid waste received and disposed of at the facility, until the facility no longer receives wastes and begins closure activities. The amount of the groundwater fee is specified in s. 144.441(7)(c), Stats. The department shall deposit all groundwater fees into the groundwater fund as provided for in s. 25.48, Stats. The monies in the groundwater fund shall be expended as set forth in ss. 20.115(1)(s), 20.370(2)(mq) and (ms), 20.435(1)(q), and 20.445(1)(q), Stats.

(4) CERTIFICATION. The owner or operator of a licensed hazardous waste land disposal facility shall certify, on a form provided by the department, the amount of hazardous waste received and disposed of during the preceding reporting period. The department shall specify the term of the reporting period on the certification form. The department shall mail the certification form to the owner or operator every January. The certification form shall be completed and returned to the department if the tonnage or categories of hazardous waste or solid waste disposed of during the preceding reporting period are different from the year immediately preceding the reporting period. The certification form shall be returned to the department within 45 days after mailing of the form by the department to the owner or operator. The department shall mail the fees notice in May and the owner or operator has 30 days after mailing of the fees notice to remit the appropriate fees to the department. An owner or operator failing to remit the appropriate fees within 30 days after mailing of the fees notice to the owner or operator shall pay a late processing fee of \$50.

(5) DETERMINATION OF WASTE TONNAGES. (a) Determination by owner or operator. The owner or operator shall use one of the following methods for determining the number of tons of waste received and disposed of at the land disposal facility.

1. The owner or operator may use actual weight or volume records, or
2. The owner or operator may use manifest records.

(b) Conversion factors. The conversion factors in table IX shall be used. All conversion factors are based on wet densities.

Table IX
CONVERSION FACTORS

Liquid wastes	Actual weighing of the waste material is required.
Pulp and papermill sludge	
In-field - compacted	2,200 pounds/cubic yard
Municipal wastewater sludge	1,684 pounds/cubic yard
Utility ash - fly and bottom	
As delivered - uncompacted	2,200 pound s/cubic yard
In-field - compacted	2,400 pounds/cubic yard
Foundry wastes	
As delivered - uncompacted	2,600 pounds/cubic yard
In-field - compacted	3,000 pounds/cubic yard

(c) Department estimates. The department may estimate by waste category the number of tons received at a hazardous waste disposal facility. The department's estimate shall appear on the certification form and shall be the number of tons received and reported for the previous reporting period.

(6) WASTE MANAGEMENT FUND EXPENDITURES. (a) Payments for long-term care after termination of owner responsibility. The department shall determine the necessary maintenance requirements for the long-term care of an approved hazardous waste disposal facility after the termination of the owner's responsibility. The department shall comply with s. 16.75, Stats., when applicable, for contracting services for the required long-term care and maintenance of hazardous waste disposal facilities.

(b) Payments of related costs. The department shall comply with s. 144.441(6)(f), Stats., prior to making any expenditures from the waste management fund under s. 144.441(6)(e), Stats.

(c) Other payments. The department may expend monies from the waste management fund in accordance with s. 144.441(6)(g) to (i), Stats.

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources

Board on _____.

The rules shall take effect the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro), Stats.

Dated at Madison, Wisconsin _____

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____
Carroll D. Besadny, Secretary

(SEAL)

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on July 26, 1990.

The rules shall take effect the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin November 5, 1990

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By Carroll D. Besadny
Carroll D. Besadny, Secretary

(SEAL)

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State of Wisconsin

DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny, Secretary
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Madison, Wisconsin 53707
TELEFAX NO. 608-267-3579
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November 5, 1990

Mr. Gary L. Poulson
Assistant Revisor of Statutes
119 Martin Luther King, Jr., Blvd.

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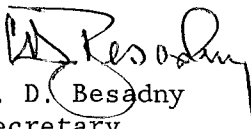
Revisor of Statutes
Bureau

Dear Mr. Poulson:

Enclosed is a certified copy, of State of Wisconsin Natural Resources Board Order No. SW-63-89. These rules were reviewed by the Assembly Committee on Natural Resources and the Senate Committee on Urban Affairs, Environmental Resources, Utilities and Elections pursuant to s. 227.19, Stats. Summaries of the final regulatory flexibility analysis and comments of the legislative review committees are also enclosed.

You will note that this order takes effect following publication. Kindly publish it in the Administrative Code accordingly.

Sincerely,


C. D. Besadny
Secretary

Enc.

