Pollution Control Agency

Hazardous Waste Division

Adopted Permanent Rules Relating to Hazardous Waste

Rules as Adopted

7001.0150 TERMS AND CONDITIONS OF PERMITS.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **General conditions.** Unless specifically exempted by statute or rule, each draft and final permit must include the following general conditions and the agency shall incorporate these conditions into all permits either expressly or by specific reference to this part:

[For text of items A to O, see M.R.]

P. Compliance with an RCRA permit during its term constitutes compliance, for purposes of enforcement, with subtitle C ~~or~~ of RCRA except for those requirements not included in the permit which:

(1) become effective by statute;

(2) are adopted under parts 7045.1300 to 7045.1380, restricting the placement of hazardous wastes in or on the land; or

(3) are adopted under parts 7045.0450 to 7045.0548 regarding leak detection systems for new and replacement surface impoundment, waste pile, and landfill units, and lateral expansions of surface impoundment, waste pile, and landfill units. The leak detection system requirements include double liners, construction quality assurance programs, monitoring, action leakage rates, and response action plans, and will be implemented through the procedures of part 7001.0730, minor permit modifications.

7001.0590 PART B INFORMATION REQUIREMENTS FOR SURFACE IMPOUNDMENTS.

Except as otherwise provided in part 7045.0532, subpart 1, if the applicant proposes to store, treat, or dispose of

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hazardous waste in surface impoundment facilities, the applicant shall submit detailed plans and specifications accompanied by an engineering report which collectively includes the following information in addition to the information required by part 7001.0560:

[For text of items A and B, see M.R.]

C. Detailed plans and an engineering report describing how the surface impoundment is designed, and is or will be constructed, operated, and maintained to meet the requirements of parts 7045.0461 and 7045.0532, subparts 3, 4a, and 4b, addressing the following items:

(1) The double liner and leak (leachate) detection, collection, and removal system, if the surface impoundment must meet the requirements of part 7045.0532, subpart 3, item C. If an exemption from the requirements for double liners and a leak detection, collection, and removal system or alternative design is sought as provided by part 7045.0532, subpart 3, item ~~H or~~ J or K, submit appropriate information.

(2) If the leak detection system is located in a saturated zone, submit detailed plans and an engineering report explaining the leak detection system design and operation, and the location of the saturated zone in relation to the leak detection system.

(3) The construction quality assurance plan if required under part 7045.0461.

(4) Proposed action leakage rate, with rationale, if required under part 7045.0532, subpart 4a, and response action plan, if required under part 7045.0532, subpart 4b.

(5) Prevention of overtopping.

(6) Structural integrity of dikes.

D. A description of how each surface impoundment, including the double liner system, leak detection system, leachate collection and removal system, cover system, and appurtenances for control of overtopping, will be inspected in order to meet the requirements of part 7045.0532, subpart 5,

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items A, B, and E. This information must be included in the inspection plan submitted under part 7001.0560, item E.

[For text of items E to M, see M.R.]

7001.0600 PART B INFORMATION REQUIREMENTS FOR WASTE PILES.

Except as otherwise provided by part 7045.0534, subpart 1, if the applicant proposes to store or treat hazardous waste in waste piles, the applicant shall furnish the information required by items A to M in addition to the information required by part 7001.0560:

[For text of items A to C, see M.R.]

D. Detailed plans and an engineering report describing how the waste pile is designed and is or will be constructed, operated, and maintained to meet the requirements of parts 7045.0461 and 7045.0534, subparts 3, 4a, and 5a, addressing the following items:

(1)(a) The liner system, except for an existing portion of a waste pile, if the waste pile must meet the requirements of part 7045.0534, subpart 3, item A. If an exemption from the requirement for a liner is sought as provided by part 7045.0534, subpart 3, item H K, the applicant must submit detailed plans, and engineering and hydrogeological reports, as appropriate, describing alternate designs and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

(b) The double liner and leak (leachate) detection, collection, and removal system, if the waste pile must meet the requirements of part 7045.0534, subpart 3, item C. If an exemption from the requirements for double liners and a leak detection, collection, and removal system or alternative design is sought as provided by part 7045.0534, subpart 3, item D or F E, the applicant must submit appropriate information.

(c) If the leak detection system is located in a saturated zone, the applicant must submit detailed plans and an engineering report explaining the leak detection system

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design and operation, and the location of the saturated zone in relation to the leak detection system.

(d) The construction quality assurance plan if required under part 7045.0461.

(e) Proposed action leakage rate, with rationale, if required under part 7045.0534, subpart 4a, and response action plan, if required under part 7045.0534, subpart 5a.

(2) Control of run-on.

(3) Control of runoff.

(4) Management of collection and holding units associated with run-on and runoff control systems.

(5) Control of wind dispersal of particulate matter, if applicable.

(6) Treatment and disposal of collected runoff and leachate.

[For text of items E and F, see M.R.]

G. A description of how each waste pile, including the double liner system, leachate collection and removal system, leak detection system, cover system, and appurtenances for control of run-on and runoff, will be inspected in order to meet the requirements of part 7045.0534, subpart 6, items A, B, and C. This information must be included in the inspection plan submitted under part 7001.0560, item E. If an exemption is sought to part 7045.0484 under part 7045.0534, subpart 5, describe in the inspection plan how the inspection requirements comply with part 7045.0534, subpart 5, item A, subitem (2).

[For text of items H to M, see M.R.]

7001.0620 PART B INFORMATION REQUIREMENTS FOR LANDFILLS.

Except as otherwise provided by part 7045.0538, subpart 1, if the applicant proposes to dispose of hazardous waste in a landfill, the applicant shall furnish the information designated in items A to L in addition to the information required by part 7001.0560:

[For text of items A and B, see M.R.]

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C. Detailed plans and an engineering report describing how the landfill is designed and is or will be constructed, operated, and maintained to meet the requirements of parts 7045.0461 and 7045.0538, subparts 3, 4a, and 5, addressing the following items:

(1)(a) The liner system, except for an existing portion of a landfill, if the landfill must meet the requirements of part 7045.0538, subpart 3, item A. If an exemption from the requirement for a liner is sought as provided by part 7045.0538, subpart 3, item ~~B~~ K, submit detailed plans, and engineering and hydrogeological reports, as appropriate, describing alternate designs and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

(b) The double liner and leak (leachate) detection, collection, and removal system, if the landfill must meet the requirements of part 7045.0538, subpart 3, item C. If an exemption from the requirements for double liners and a leak detection, collection, and removal system or alternative design is sought as provided by part 7045.0538, subpart 3, items ~~K~~ M and ~~M~~ N, submit appropriate information.

(c) If the leak detection system is located in a saturated zone, submit detailed plans and an engineering report explaining the leak detection system design and operation, and the location of the saturated zone in relation to the leak detection system.

(d) The construction quality assurance plan if required under part 7045.0461.

(e) Proposed action leakage rate, with rationale, if required under part 7045.0538, subpart 4a, and response action plan, if required under part 7045.0538, subpart 5.

(2) Control of run-on.

(3) Control of runoff.

(4) Management of collection and holding

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facilities associated with run-on and runoff control systems.

(5) Control of wind dispersal of particulate matter, where applicable.

(6) The phased development plan in accordance with the requirements of part 7045.0538, subpart 3, item G.

(7) Treatment and disposal of collected runoff and leachate.

D. A description of how each landfill, including the double liner system, leachate collection and removal system, leak detection system, cover system, and appurtenances for control of run-on and runoff, will be inspected in order to meet the requirements of part 7045.0538, subpart 5, items A, B, and C. This information must be included in the inspection plan submitted under part 7001.0560, item E.

[For text of items E to L, see M.R.]

7045.0020 DEFINITIONS.

[For text of subps 1 to 10a, see M.R.]

Subp. 10b. **Construction commenced.** "Construction commenced" is related to the definition of "existing facility," and has the following meaning. A facility has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and:

A. a continuous on-site, physical construction program has begun; or

B. the owner or operator has entered into contractual obligations, which cannot be canceled or modified without substantial loss, for physical construction of the facility to be completed within a reasonable time.

[For text of subps 11 to 22a, see M.R.]

Subp. 22b. **Existing hazardous waste management facility or existing facility.** "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. See subpart 10b for definition of

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"construction commenced."

[For text of subps 23 to 73d, see M.R.]

Subp. 73e. **Replacement unit.** "Replacement unit" means a landfill, surface impoundment, or waste pile unit (1) from which all or substantially all of the waste is removed, and (2) that is subsequently reused to treat, store, or dispose of hazardous waste. Replacement unit does not apply to a unit from which waste is removed during closure, if the subsequent reuse solely involves the disposal of waste from that unit and other closing units or corrective action areas at the facility, in accordance with an approved closure plan or EPA or state-approved corrective action.

[For text of subps 74 to 87, see M.R.]

Subp. 87a. **Sump.** "Sump" means any pit or reservoir that meets the definition of "tank" and those troughs or trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities; except that as used in the landfill, surface impoundment, and waste pile rules, sump means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system.

[For text of subps 88 to 109, see M.R.]

7045.0125 MANAGEMENT OF WASTE BY USE, REUSE, RECYCLING, AND RECLAMATION.

[For text of subps 1 to 3a, see M.R.]

Subp. 4. **Management of specific hazardous wastes.** Management of the following wastes when recycled, is not subject to regulation under parts 7045.0205 to 7045.0695 and 7045.1300 to 7045.1380:

[For text of items A to H, see M.R.]

I. oil that is reclaimed from oil-bearing hazardous wastes from petroleum refining, production, and transportation practices, and is burned as a fuel without reintroduction to a refining process, if the reclaimed oil meets the used oil fuel

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specification under part 7045.0695, subpart 1, item B, subitem (1);

J. petroleum coke produced from petroleum refinery hazardous wastes containing oil at the same facility at which the wastes were generated, unless the resulting coke product exhibits one or more of the characteristics of hazardous waste in part 7045.0131; and

K. nonwastewater splash condenser dross residue from the treatment of K061 in high temperature metals recovery units, provided it is shipped in drums, if shipped, and not land disposed before recovery.

[For text of subps 5 to 12, see M.R.]

7045.0135 LISTS OF HAZARDOUS WASTES.

[For text of subpart 1, see M.R.]

Subp. 2. **Hazardous wastes from nonspecific sources.** Hazardous wastes from nonspecific sources are listed with the generic hazardous waste number and hazard code in items A to BB.

[For text of items A to X, see M.R.]

Y. F035, wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol. This listing does not apply to wastewaters which have not come into contact with process contaminants: (T);

Z. F037, petroleum refinery primary oil/water/solids separation sludge. Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludges generated

in stormwater units that do not receive dry weather flow, sludges generated from noncontact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in subpart 2a, including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units, and K051 wastes are not included in this listing: (T);

AA. F038, petroleum refinery secondary (emulsified) oil/water/solids separation sludge. Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation units, tanks and impoundments, and all sludges generated in dissolved air flotation units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated form noncontact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges, and floats generated in one or more additional units as defined in subpart 2a, including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units, and F037, K048, and K051 wastes are not included in this listing: (T); and

BB. F039, leachate resulting from the treatment, storage, or disposal of more than one restricted waste classified as hazardous under part 7045.0131 and this part. Leachate resulting from the management of one or more of the following EPA hazardous wastes and no other hazardous wastes retains its EPA hazardous waste numbers: F020, F021, F022, F023, F026, F027, or F028: (T).

Subp. 2a. **Listing-specific definitions.**

A. For the purposes of the F037 and F038 listings, "oil/water/solids" is defined as oil and/or water and/or solids.

B. (1) For the purposes of the F037 and F038

listings, aggressive biological treatment units are defined as units which employ one of the following four treatment methods: activated sludge; trickling filter; rotating biological ~~contractor~~ contactor for the continuous accelerated biological oxidation of wastewaters; or high-rate aeration. High-rate aeration is a system of surface impoundments or tanks, in which intense mechanical aeration is used to completely mix the wastes and enhance biological activity, the unit employs a minimum of six horsepower per million gallons of treatment volume, and either (a) the hydraulic retention time of the unit is no longer than five days; or (b) the hydraulic retention time is no longer than 30 days and the unit does not generate a sludge that is a hazardous waste by the toxicity characteristic.

(2) Generators and treatment, storage, and disposal facilities have the burden of proving that their sludges are exempt from listing as F037 and F038 wastes under this definition. Generators and treatment, storage, and disposal facilities must maintain, in their operating or other on-site records, documents and data sufficient to prove that (a) the unit is an aggressive biological treatment unit as defined in this subpart; and (b) the sludges sought to be exempted from the definitions of F037 or F038 were actually generated in the aggressive biological treatment unit.

C. (1) For the purposes of the F037 listing, sludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement.

(2) For the purposes of the F038 listing (a) sludges are considered to be generated at the moment of deposition in the unit, where deposition is defined as at least a temporary cessation of lateral particle movement; and (b) floats are considered to be generated at the moment they are formed in the top of the unit.

[For text of subps 3 to 5, see M.R.]

7045.0139 BASIS FOR LISTING HAZARDOUS WASTES.

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[For text of subpart 1, see M.R.]

Subp. 2. **Constituents.** The constituents which are the basis for listing the wastes identified in part 7045.0135, subparts 2 and 3 are listed in items A and B.

A. Constituents of wastes identified in part 7045.0135, subpart 2, are listed in subitems (1) to (28).

[For text of subitems (1) to (24), see M.R.]

(25) F035: Arsenic; chromium; lead;

(26) F037: Benzene; benzo(a)pyrene; chrysene; lead; chromium;

(27) F038: Benzene; benzo(a)pyrene; chrysene; lead; chromium; and

(28) F039: Constituents for which treatment standards are specified for multisource leachate, wastewaters, and nonwastewaters under part 7045.1358.

[For text of item B, see M.R.]

7045.0214 EVALUATION OF WASTES.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Wastes generated by treatment, storage, or disposal.** Wastes generated by treatment, storage, or disposal of hazardous waste are as follows:

[For text of items A to D, see M.R.]

E. Nonwastewater residues, such as slag, resulting from high temperature metals recovery processing of K061 waste, in units identified as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, rotary hearth furnace/electric furnace combinations, or industrial furnaces, as defined in part 7045.0020, subpart 43b, that are disposed of in solid waste disposal units, provided that these residues meet the generic exclusion levels identified below for all constituents, and exhibit no characteristics of hazardous waste. Testing requirements must be incorporated in a facility's waste analysis plan or a generator's self-implementing waste analysis plan. At a minimum, composite samples of residues must be collected and analyzed quarterly

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and/or when the process or operation generating the waste changes. The generic exclusion levels are:

Constituent	Maximum for any single composite sample (mg/l)
Antimony	0.063
Arsenic	0.055
Barium	6.3
Beryllium	0.0063
Cadmium	0.032
Chromium (total)	0.33
Lead	0.095
Mercury	0.009
Nickel	0.63
Selenium	0.16
Silver	0.30
Thallium	0.013
Vanadium	1.26

For each shipment of K061 high temperature metals recovery residues sent to a solid waste disposal unit that meets the generic exclusion levels for all constituents, and does not exhibit any characteristic, a notification and certification must be sent to the commissioner. The notification must include the following information:

(1) the name and address of the solid waste disposal unit receiving the waste shipment;

(2) the EPA hazardous waste number and treatability group at the initial point of generation; and

(3) the treatment standards applicable to the waste at the initial point of generation.

The certification must be signed by an authorized representative and must state as follows: "I certify under penalty of law that the generic exclusion levels for all constituents have been met without impermissible dilution and that no characteristic of hazardous waste is exhibited. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

7045.0452 GENERAL FACILITY STANDARDS.

[For text of subps 1 to 4, see M.R.]

Subp. 5. **General inspection requirements.** General inspection requirements include the following:

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[For text of items A and B, see M.R.]

C. The frequency of inspection may vary for the items on the schedule. However, it must 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 malfunctions or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. The inspection schedule must include the terms and frequencies called for in parts 7045.0526, subpart 5; 7045.0528, subparts 4 and 7; 7045.0532, subpart 5; 7045.0534, subpart 6; 7045.0536, subpart 6; 7045.0538, subpart 5; 7045.0539, subpart 3; and 7045.0542, subpart 7; and the process vent and equipment leak standards in Code of Federal Regulations, title 40, sections 264.1033, 264.1052, 264.1053, and 264.1058, as amended, where applicable. The inspection schedule must be submitted with the permit application. The commissioner shall evaluate the schedule along with the rest of the application to ensure that it adequately protects human health and the environment. As part of this review, the commissioner may modify or amend the schedule as necessary.

[For text of items D and E, see M.R.]

7045.0461 CONSTRUCTION QUALITY ASSURANCE PROGRAM.

Subpart 1. **Construction quality assurance program.** A construction quality assurance program is required for all surface impoundment, waste pile, and landfill units that are required to comply with parts 7045.0532, subpart 3, items C and H; 7045.0534, subpart 3, items C and D; and 7045.0538, subpart 3, items C and K. The program must ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program must be developed and implemented under the direction of a construction quality assurance officer who is a registered professional engineer.

The construction quality assurance program must address the following physical components, where applicable:

~~(1)~~ A. foundations;

~~(2)~~ B. dikes;

~~(3)~~ C. low-permeability soil liners;

~~(4)~~ D. geomembranes (flexible membrane liners);

~~(5)~~ E. leachate collection and removal systems and leak detection systems; and

~~(6)~~ F. final cover systems.

Subp. 2. **Written construction quality assurance plan.** The owner or operator of units subject to the construction quality assurance program under subpart 1 must develop and implement a written construction quality assurance plan. The plan must identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The construction quality assurance plan must include:

A. Identification of applicable units, and a description of how they will be constructed.

B. Identification of key personnel in the development and implementation of the construction quality assurance plan, and construction quality assurance officer ~~qualification~~ qualifications.

C. A description of inspection and sampling activities for all unit components identified in subpart 1, ~~item~~ B~~,~~ including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description must cover sampling size and locations, frequency of testing, data evaluation procedures, acceptance and rejection criteria for construction materials, plans for implementing corrective measures, and data or other information to be recorded and retained in the operating record under part 7045.0478.

Subp. 3. **Contents of program.**

A. The construction quality assurance program must include observations, inspections, tests, and measurements sufficient to ensure:

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(1) structural stability and integrity of all components of the unit identified in subpart 1~~, item~~ B;

(2) proper construction of all components of the liners, leachate collection and removal system, leak detection system, and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g. pipes) according to design specifications; and

(3) conformity of all materials used with design and other material specifications under parts 7045.0532, 7045.0534, and 7045.0538.

B. The construction quality assurance program shall include test fills for compacted soil liners, using the same compaction methods as in the full scale unit, to ensure that the liners are constructed to meet the hydraulic conductivity requirements of parts 7045.0532, subpart 3, item C, subitem (1), unit (a), subunit ii; 7045.0534, subpart 3, item C, subitem (1), unit (a), subunit ii; and 7045.0538, subpart 3, item C, subitem (1), unit (a), subunit ii, in the field. Compliance with the hydraulic conductivity requirements must be verified by using in-situ testing on the constructed test fill. The commissioner may accept an alternative demonstration, in lieu of a test fill, where data are sufficient to show that a constructed soil liner will meet the hydraulic conductivity requirements of parts 7045.0532, subpart 3, item C, subitem (1), unit (a), subunit ii; 7045.0534, subpart 3, item C, subitem (1), unit (a), subunit ii; and 7045.0538, subpart 3, item C, subitem (1), unit (a), subunit ii, in the field.

Subp. 4. **Certification.** Waste shall not be received in a unit subject to part 7045.0461 until the owner or operator has submitted to the commissioner by certified mail or hand delivery a certification signed by the construction quality assurance officer that the approved construction quality assurance plan has been successfully carried out and that the unit meets the requirements of parts 7045.0532, subpart 3, items C and H; 7045.0534, subpart 3, items C and D; and 7045.0538, subpart 3,

items C and K; and the procedure in part 7001.0150, subpart 3, item M, has been completed. Documentation supporting the construction quality assurance officer's certification must be furnished to the commissioner upon request.

7045.0478 OPERATING RECORD.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Record information.** The information in items A to S must be recorded, as it becomes available, and maintained in the operating record until closure of the facility.

[For text of items A to G, see M.R.]

H. Monitoring, testing, or analytical data and corrective action where required by parts 7045.0461; 7045.0484; 7045.0528, subparts 2, 4, 5, and 7; 7045.0532, subparts 4a, 4b, and 5; 7045.0534, subparts 4a, 5, 5a, and 6; 7045.0536, subparts 5, 6, and 8; 7045.0538, subparts 4a, 5, 5a, and 6; 7045.0539, subpart 3; and 7045.0542, subpart 7; and the process vent and equipment leak test methods and procedures and record keeping requirements in Code of Federal Regulations, title 40, sections 264.1034(c) to (f), 264.1035, 264.1063(d) to (i), and 264.1064, as amended.

[For text of items I to S, see M.R.]

7045.0532 SURFACE IMPOUNDMENTS.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Design and operating requirements.** Design and operating requirements are as follows:

[For text of items A and B, see M.R.]

C. The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction commences after July 29, 1992, and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system between such liners. "Construction commences" and "existing facility" are defined in part 7045.0020.

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(1)(a) The liner system must include:

i. a top liner designed and constructed of materials (e.g. a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

ii. a composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g. a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet (91 centimeters) of compacted soil material with a hydraulic conductivity of no more than 1 x 10 to the negative 7th power centimeters per second.

(b) The liners must comply with item A.

(2) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this subitem are satisfied by installation of a system that is, at a minimum:

(a) constructed with a bottom slope of one percent or more;

(b) constructed of granular drainage materials with a hydraulic conductivity of 1 x 10 to the negative 1st power centimeters per second or more and a thickness of 12 inches (30.5 centimeters) or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3 x 10 to the negative 4th power meters

squared per second or more;

(c) constructed of materials that are chemically resistant to the waste managed in the surface impoundment and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes and any waste cover materials or equipment used at the surface impoundment;

(d) designed and operated to minimize clogging during the active life and postclosure care period; and

(e) constructed with sumps and liquid removal methods (e.g. pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(3) The owner or operator shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner.

(4) The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of groundwater.

[For text of items D to G, see M.R.]

~~H. The commissioner may approve alternative design or operating practices to those specified in item C if the owner or operator demonstrates to the commissioner that such design and operating practices, together with location characteristics:~~

~~(1) will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system specified in item C; and~~

~~(2) will allow detection of leaks of hazardous constituents through the top liner at least as effectively.~~ An owner or operator may petition for alternate design and

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operating practices under part 7045.0075, subpart 12.

[For text of item I, see M.R.]

J. The commissioner shall approve alternative design or operating practices to those specified in item C if the owner or operator demonstrates to the commissioner that such design and operating practices, together with location characteristics:

(1) will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system specified in item C; and

(2) will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

K. The owner or operator of any replacement surface impoundment unit is exempt from item C if:

(1) the existing unit was constructed in compliance with the design standards of the United States Resource Conservation and Recovery Act, section 3004(o)(1)(A)(i) and (o)(5); and

(2) there is no reason to believe that the liner is not functioning as designed.

[For text of subp 4, see M.R.]

Subp. 4a. **Action leakage rate.**

A. The commissioner shall approve an action leakage rate for surface impoundment units subject to subpart 3, item C or H. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic

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components of the system, overburden pressures, etc.).

B. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subpart 5, item E, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and if the unit is closed in accordance with subpart 7, item B, monthly during the postclosure care period when monthly monitoring is required under subpart 5, item E.

Subp. 4b. **Response actions.**

A. The owner or operator of surface impoundment units subject to subpart 3, item C or H, must have an approved response action plan before receipt of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks;

and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1)(a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

Subp. 5. **Monitoring and inspection.** Monitoring and inspection requirements are as follows:

[For text of items A to D, see M.R.]

E. Leak detection system sump monitoring.

(1) An owner or operator required to have a leak detection system under subpart 3, item C or H, must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

(2) After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below

the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

(3) "Pump operating level" is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

[For text of subp 6, see M.R.]

Subp. 7. **Closure and postclosure care.** The requirements of closure and postclosure care are as follows:

[For text of item A, see M.R.]

B. If waste residues or contaminated materials are left in place at final closure, the owner or operator shall comply with the postclosure requirements contained in parts 7045.0490 to 7045.0496, including maintenance and monitoring throughout the postclosure care period specified in the permit under part 7045.0490. The owner or operator shall:

[For text of subitem (1), see M.R.]

(2) maintain and monitor the leak detection system in accordance with subparts 3, item C, subitems (3), unit (d), and (4); and 5, item E, and comply with all other applicable leak detection system requirements;

(3) maintain and monitor the leak detection system in accordance with subparts 3 and 4;

(4) maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of part 7045.0484; and

(5) prevent run-on and runoff from eroding or otherwise damaging the final cover.

[For text of items C to E, see M.R.]

[For text of subps 8 to 10, see M.R.]

7045.0534 WASTE PILES.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Design and operating requirements.** Design and operating requirements are as follows:

[For text of items A and B, see M.R.]

C. The owner or operator of each new waste pile unit on which construction commences after January 29, 1992, each lateral expansion of a waste pile unit on which construction commences after July 29, 1992, and each replacement of an existing waste pile unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners. "Construction commences" and "existing facility" are defined in part 7045.0020.

(1)(a) The liner system must include:

i. a top liner designed and constructed of materials (e.g. a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

ii. a composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g. a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet (91 centimeters) of compacted soil material with a hydraulic conductivity of no more than 1 x 10 to the negative 7th power centimeters per second.

(b) The liners must comply with item A, subitems (1) to (3).

(2) The leachate collection and removal system

immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the waste pile during the active life and postclosure care period. The commissioner will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 centimeters (one foot). The leachate collection and removal system must comply with subitem (3), units (c) and (d).

(3) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this subitem are satisfied by installation of a system that is, at a minimum:

(a) constructed with a bottom slope of one percent or more;

(b) constructed of granular drainage materials with a hydraulic conductivity of 1 x 10 to the negative 2nd power centimeters per second or more and a thickness of 12 inches (30.5 centimeters) or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3 x 10 to the negative 5th meters squared per second or more;

(c) constructed of materials that are chemically resistant to the waste managed in the waste pile and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the waste pile;

(d) designed and operated to minimize clogging during the active life and postclosure care period; and

(e) constructed with sumps and liquid

removal methods (e.g. pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(4) The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.

(5) The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of groundwater.

D. The commissioner ~~may~~ shall approve alternative design or operating practices to those specified in item C if the owner or operator demonstrates to the commissioner that such design and operating practices, together with location characteristics:

(1) will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal systems specified in item C; and

(2) will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

E. The owner or operator of any replacement waste pile unit is exempt from item C if:

(1) the existing unit was constructed in compliance with the design standards of the United States Resource Conservation and Recovery Act, section 3004(o)(1)(A)(i) and (o)(5); and

(2) there is no reason to believe that the liner is not functioning as designed.

F. The owner or operator shall design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak

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discharge from at least a 100-year storm.

G. The owner or operator shall design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 100-year storm.

H. Collection and holding facilities, such as tanks or basins, associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

I. If the pile contains any particulate matter which may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the pile to control wind dispersal of hazardous waste.

J. The owner or operator of a waste pile shall submit to the agency with the permit application a plan for the treatment and disposal of runoff contained in the runoff management system and leachate which is removed from the waste pile.

K. An owner or operator may petition for alternate design or operating practices under part 7045.0075, subpart 12.

L. The agency shall specify in the permit all design and operating practices that are necessary to ensure that the requirements of items A to H are satisfied.

Subp. 4a. **Action leakage rate.**

A. The commissioner shall approve an action leakage rate for waste pile units subject to subpart 3, item C or D. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity

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of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

B. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly flow rate from the monitoring data obtained under subpart 6, item C, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

Subp. 5a. **Response actions.**

A. The owner or operator of waste pile units subject to subpart 3, item C or D, must have an approved response action plan before receipt of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1)(a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

Subp. 6. **Monitoring and inspection.** Monitoring and inspection requirements are as follows:

[For text of items A and B, see M.R.]

C. An owner or operator required to have a leak detection system under subpart 3, item C, must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

[For text of subps 7 to 10, see M.R.]

7045.0538 LANDFILLS.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Design and operating requirements.** Design and operating requirements are as follows:

[For text of items A and B, see M.R.]

C. The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each

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lateral expansion of a landfill unit on which construction commences after July 29, 1992, and each replacement of an existing landfill unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners. "Construction commences" and "existing facility" are defined in part 7045.0020.

(1)(a) The liner system must include:

i. a top liner designed and constructed of materials (e.g. a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and postclosure care period; and

ii. a composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g. a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and postclosure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least three feet (91 centimeters) of compacted soil material with a hydraulic conductivity of no more than 1 x 10 to the negative 7th centimeters per second.

(b) The liners must comply with item A.

(2) The leachate collection and removal system immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and postclosure care period. The commissioner will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 centimeters (one foot). The leachate collection and removal system must comply with subitem (3), units (c) and (d).

(3) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal

systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and postclosure care period. The requirements for a leak detection system in this subitem are satisfied by installation of a system that is, at a minimum:

(a) constructed with a bottom slope of one percent or more;

(b) constructed of granular drainage materials with a hydraulic conductivity of 1 x 10 to the negative 2nd centimeters per second or more and a thickness of 12 inches (30.5 centimeters) or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3 x 10 to the negative 5th meters squared per second or more;

(c) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the landfill;

(d) designed and operated to minimize clogging during the active life and postclosure care period; and

(e) constructed with sumps and liquid removal methods (e.g. pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump. The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(4) The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.

(5) The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak

detection system will not be adversely affected by the presence of groundwater.

[For text of items D to J, see M.R.]

~~K. The commissioner may approve alternative design or operating practices to those specified in item C if the owner or operator demonstrates to the commissioner that such design and operating practices, together with location characteristics:~~

~~(1) will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal systems specified in item C, and~~

~~(2) will allow detection of leaks of hazardous constituents through the top liner at least as effectively.~~ An owner or operator may petition for alternate design or operating practices under part 7045.0075, subpart 12.

[For text of item L, see M.R.]

M. The commissioner shall approve alternative design or operating practices to those specified in item C if the owner or operator demonstrates to the commissioner that such design and operating practices, together with location characteristics:

(1) will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal systems specified in item C; and

(2) will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

N. The owner or operator of any replacement landfill unit is exempt from item C if:

(1) the existing unit was constructed in compliance with the design standards of the United States Resource Conservation and Recovery Act, section 3004(o)(1)(A)(i) and (o)(5); and

(2) there is no reason to believe that the liner is not functioning as designed.

[For text of subp 4, see M.R.]

Subp. 4a. **Action leakage rate.**

A. The commissioner shall approve an action leakage rate for ~~surface impoundment~~ landfill units subject to subpart 3, item C or K. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

B. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subpart 5, item C, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and monthly during the postclosure care period when monthly monitoring is required under subpart 5, item C.

Subp. 5. **Monitoring and inspection.** Monitoring and inspection requirements are as follows:

[For text of items A and B, see M.R.]

C. (1) An owner or operator required to have a leak detection system under subpart 3, item C or K, must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

(2) After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive

months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

(3) "Pump operating level" is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

Subp. 5a. **Response actions.**

A. The owner or operator of landfill units subject to subpart 3, item C or K, must have an approved response action plan before receipt of waste. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the

unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1)(a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

[For text of subp 6, see M.R.]

Subp. 7. **Closure and postclosure care.** Closure and postclosure care requirements are as follows:

[For text of item A, see M.R.]

B. After final closure, the owner or operator shall comply with all postclosure requirements contained in parts 7045.0488 to 7045.0494 including maintenance and monitoring throughout the postclosure care period specified in the permit under part 7045.0488. The owner or operator shall:

[For text of subitems (1) to (3), see M.R.]

(4) maintain and monitor the leak detection

system in accordance with subparts 3, item C, subitems (3), unit (d), and (4); and 5, item C, and comply with all other applicable leak detection system requirements of this part;

(5) maintain and monitor the groundwater monitoring systems and comply with all other applicable requirements of part 7045.0484;

(6) prevent run-on and runoff from eroding or otherwise damaging the final cover;

(7) protect and maintain surveyed benchmarks used in complying with subpart 6; and

(8) survey the landfill at least annually to determine any effects from settling, subsidence, erosion, or other events.

[For text of item C, see M.R.]

[For text of subps 8 to 13, see M.R.]

7045.0556 GENERAL FACILITY STANDARDS.

[For text of subps 1 to 4, see M.R.]

Subp. 5. **General inspection requirements.** General inspection requirements are listed in items A to E.

[For text of items A and B, see M.R.]

C. The frequency of inspection may vary for the items on the schedule. However, it must 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, must be inspected daily when in use. The inspection schedule must include the terms and frequencies called for in parts 7045.0626, subpart 5; 7045.0628, subparts 4, 5, and 7; 7045.0630, subpart 5; 7045.0632, subpart 9; 7045.0634, subpart 4; 7045.0638, subpart 2c; 7045.0640, subpart 4; and 7045.0642, subpart 4; and the process vent and equipment leak standards in Code of Federal Regulations, title 40, sections 264.1033, 264.1052, 264.1053, and 264.1058, as amended.

[For text of items D and E, see M.R.]

[For text of subps 6 and 7, see M.R.]

Subp. 8. **Construction quality assurance program.**

A. Construction quality assurance program.

(1) A construction quality assurance program is required for all surface impoundment, waste pile, and landfill units that are required to comply with parts 7045.0630, subpart 1a, item A; 7045.0632, subpart 4a; and 7045.0638, subpart 2, item A. The program must ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program must be developed and implemented under the direction of a construction quality assurance officer who is a registered professional engineer.

(2) The construction quality assurance program must address the following physical components, where applicable:

(a) foundations;

(b) dikes;

(c) low-permeability soil liners;

(d) geomembranes (flexible membrane liners);

(e) leachate collection and removal systems and leak detection systems; and

(f) final cover systems.

B. Written construction quality assurance plan. Before construction begins on a unit subject to the construction quality assurance program under item A, the owner or operator must develop a written construction quality assurance plan. The plan must identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The construction quality assurance plan must include:

(1) identification of applicable units, and a description of how they will be constructed;

(2) identification of key personnel in the development and implementation of the construction quality assurance plan, and construction quality assurance officer qualifications; and

(3) a description of inspection and sampling

activities for all unit components identified in item A, subitem (2), including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description must cover sampling size and locations, frequency of testing, data evaluation procedures, acceptance and rejection criteria for construction materials, plans for implementing corrective measures, and data or other information to be recorded and retained in the operating record under part 7045.0584.

C. Contents of program.

(1) The construction quality assurance program must include observations, inspections, tests, and measurements sufficient to ensure:

(a) structural stability and integrity of all components of the unit identified in item A, subitem (2);

(b) proper construction of all components of the liners, leachate collection and removal system, leak detection system, and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g. pipes) according to design specifications; and

(c) conformity of all materials used with design and other material specifications under parts 7045.0532, subpart 3; 7045.0534, subpart 3; and 7045.0538, subpart 3.

(2) The construction quality assurance program shall include test fills for compacted soil liners, using the same compaction methods as in the full-scale unit, to ensure that the liners are constructed to meet the hydraulic conductivity requirements of parts 7045.0532, subpart 3, item C, subitem (1); 7045.0534, subpart 3, item C, subitem (1); and 7045.0538, subpart 3, item C, subitem (1), in the field. Compliance with the hydraulic conductivity requirements must be verified by using in-situ testing on the constructed test fill. The test fill requirement is waived where data are sufficient to show that a constructed soil liner meets the hydraulic

conductivity requirements of parts 7045.0532, subpart 3, item C, subitem (1); 7045.0534, subpart 3, item C, subitem (1); and 7045.0538, subpart 3, item C, subitem (1), in the field.

D. Certification. The owner or operator of units subject to this subpart must submit to the commissioner by certified mail or hand delivery, at least 30 days prior to receiving waste, a certification signed by the construction quality assurance officer that the construction quality assurance plan has been successfully carried out and that the unit meets the requirements of parts 7045.0630, subparts 1a and 2; 7045.0632, subpart 4a; and 7045.0638, subpart 2. The owner or operator may receive waste in the unit after 30 days from the commissioner's receipt of the construction quality assurance certification unless the commissioner determines in writing that the construction is not acceptable, or extends the review period for a maximum of 30 more days, or seeks additional information from the owner or operator during this period. Documentation supporting the construction quality assurance officer's certification must be furnished to the commissioner upon request.

7045.0584 OPERATING RECORD.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Record information.** The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility:

[For text of items A to G, see M.R.]

H. Monitoring, testing, or analytical data, and corrective action where required by parts 7045.0556, subpart 8; 7045.0590, subparts 1, 6, 7, and 8; 7045.0592, subparts 1 and 7; 7045.0628, subparts 2, 4, 5, and 7; 7045.0630, subparts 2a, 3, and 5; 7045.0632, subparts 4b, 8, and 9; 7045.0634, subparts 4 and 6, item D, subitem (1); 7045.0636; 7045.0638, subparts 2a, 2b, and 2c; and 7045.0640, subpart 4, and the process vent and equipment leak test methods and procedures and record keeping requirements in Code of Federal Regulations, title 40, sections 264.1034(c) to (f), 264.1035, 264.1063(d) to (i), and 264.1064,

as amended. As required by parts 7045.0590, subparts 6 and 7; and 7045.0592, subpart 7, monitoring data at disposal facilities must be kept throughout the postclosure period.

[For text of items I to P, see M.R.]

7045.0630 SURFACE IMPOUNDMENTS.

[For text of subpart 1, see M.R.]

Subp. 1a. **Design and operating requirements.** Design and operating requirements are as follows:

A. The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction commences after July 29, 1992, and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system between such liners, and operate the leachate collection and removal system, in accordance with part 7045.0532, subpart 3, item C, unless exempted under part 7045.0532, subpart 3, item ~~H, I, or~~ J or K. "Construction commences" and "existing facility" are defined in part 7045.0020.

[For text of item B, see M.R.]

[For text of subp 2, see M.R.]

Subp. 2a. **Action leakage rate.**

A. The owner or operator of surface impoundment units subject to subpart 1a, item A, must submit a proposed action leakage rate to the commissioner when submitting the notice required under subpart 1a, item B. Within 60 days of receipt of the notification, the commissioner will establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subpart, or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60-day or extended 90-day review periods, the action leakage rate will be approved as proposed by the owner or operator.

B. The commissioner shall approve an action leakage

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rate for surface impoundment units subject to subpart 1a, item A. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

C. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subpart 5, item B, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and if the unit closes in accordance with subpart 6, item C, monthly during the postclosure care period when monthly monitoring is required under subpart 5, item B.

Subp. 2b. **Response actions.**

A. The owner or operator of surface impoundment units subject to subpart 1a, item A, must submit a response action plan to the commissioner when submitting the proposed action leakage rate under subpart 2a. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the

exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1)(a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

[For text of subps 3 and 4, see M.R.]

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Subp. 5. **Monitoring and inspection.**

A. The owner or operator shall inspect:

(1) the freeboard level at least once each operating day to ensure compliance with subpart 2; and

(2) the surface impoundment, including dikes and vegetation surrounding the dike, at least once a week to detect any leaks, deterioration, or failures in the impoundment. As required by part 7045.0556, subpart 5, the owner or operator shall remedy any deterioration or malfunction found.

B. The owner or operator shall determine leaks as follows:

(1) An owner or operator required to have a leak detection system under subpart 1a, item A, must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

(2) After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

(3) "Pump operating level" is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump. The timing for submission and approval of the proposed pump operating level will be in

accordance with subpart 2a, item A.

Subp. 6. **Closure and postclosure care.** The requirements of closure and postclosure care are as follows:

[For text of items A to C, see M.R.]

D. In addition to the requirements of parts 7045.0594 to 7045.0606 and 7045.0638, subpart 4, during the postclosure care period, the owner or operator of a surface impoundment in which wastes, waste residues, or contaminated materials remain after closure in accordance with item C shall:

[For text of subitem (1), see M.R.]

(2) maintain and monitor the leak detection system in accordance with subpart 5, item B, and comply with all other applicable leak detection system requirements;

(3) maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of part 7045.0590; and

(4) prevent run-on and runoff from eroding or otherwise damaging the final cover.

The closure requirements under part 7045.0638, subpart 4, will vary with the amount and nature of the residues remaining, if any, and the degree of contamination of the underlying and surrounding soil. The commissioner may vary postclosure requirements, according to part 7045.0602, subpart 1.

[For text of subps 7 and 8, see M.R.]

7045.0632 WASTE PILES.

[For text of subps 1 to 4, see M.R.]

Subp. 4a. **Design and operating requirements.** The owner or operator of each new waste pile on which construction commences after January 29, 1992, each lateral expansion of a waste pile unit on which construction commences after July 29, 1992, and each such replacement of an existing waste pile unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners, and operate the leachate collection and removal systems, in accordance with part 7045.0534, subpart 3,

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item C, unless exempted under part 7045.0534, subpart 3, item ~~D~~ E~~,~~ ~~E~~ or ~~F~~ E; and must comply with the procedures of part 7045.0630, subpart 1a, item B. "Construction commences" and "existing facility" are defined in part 7045.0020.

Subp. 4b. **Action leakage rates.**

A. The owner or operator of waste pile units subject to subpart 4a must submit a proposed action leakage rate to the commissioner when submitting the notice required under subpart 4a. Within 60 days of receipt of the notification, the commissioner will establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subpart, or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60-day or extended 90-day review periods, the action leakage rate will be approved as proposed by the owner or operator.

B. The commissioner shall approve an action leakage rate for ~~surface impoundment~~ waste pile units subject to subpart 4a. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

C. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly flow rate from the monitoring data obtained under subpart 9, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated

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weekly during the active life and closure period.

[For text of subps 5 to 7, see M.R.]

Subp. 8. **Response actions.**

A. The owner or operator of waste pile units subject to subpart 4a must submit a response action plan to the commissioner when submitting the proposed action leakage rate under subpart 4b. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak determination system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipts should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing

the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1) document the following assessments:

(a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

Subp. 9. **Monitoring and inspection.** An owner or operator required to have a leak detection system under subpart 4a must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

7045.0638 LANDFILLS.

[For text of subpart 1, see M.R.]

Subp. 1a. [See repealer.]

Subp. 2. **Design and operating requirements.** Design and operating requirements are as follows:

A. The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each lateral expansion of a landfill unit on which construction commences after July 29, 1992, and each replacement of an existing landfill unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners, and operate the leachate collection and removal systems, in accordance with part 7045.0538, subpart 3, item ~~K, L, or~~ M C, unless exempted under part 7045.0538, subpart 3, item M or N. "Construction commences" and "existing facility" are defined in part 7045.0020.

B. The owner or operator of each unit referred to in item A must notify the commissioner at least 60 days before receiving waste. The owner or operator of each facility submitting notice must file a part B application within six months of the commissioner's receipt of the notice.

C. The owner or operator of any replacement landfill unit is exempt from item A if:

(1) the existing unit was constructed in compliance with the design standards of the United States Resource Conservation and Recovery Act, section 3004(o)(1)(A)(i) and (o)(5); and

(2) there is no reason to believe that the liner is not functioning as designed.

D. The owner or operator shall design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 25-year storm.

E. The owner or operator shall design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

F. Collecting and holding facilities, such as tanks or basins, associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

G. The owner or operator of a landfill containing hazardous waste which is subject to dispersal by wind shall cover or otherwise manage the landfill so that wind dispersal of the hazardous waste is controlled. As required by part 7045.0564, the waste analysis plan must include analyses needed to comply with subparts 5, 6, and 7. As required by part 7045.0584, the owner or operator shall place the results of these analyses in the operating record of the facility.

Subp. 2a. **Action leakage rate.**

A. The owner or operator of landfill units subject to subpart 2, item A, must submit a proposed action leakage rate to

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the commissioner when submitting the notice required under subpart 2, item B. Within 60 days of receipt of the notification, the commissioner will establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subpart, or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60-day or extended 90-day review periods, the action leakage rate will be approved as proposed by the owner or operator.

B. The commissioner shall approve an action leakage rate for landfill units subject to subpart 2, item A. The action leakage rate is the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the leak detection system, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the leak detection system, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

C. To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subpart 2c to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and monthly during the postclosure care period when monthly monitoring is required under subpart 2c, item B.

Subp. 2b. **Response actions.**

A. The owner or operator of landfill units subject to subpart 2, item A, must submit a response action plan to the

commissioner when submitting the proposed action leakage rate under subpart 2a. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in item B.

B. If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) notify the commissioner in writing of the exceedence within seven days of the determination;

(2) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;

(3) determine to the extent practicable the location, size, and cause of any leak;

(4) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;

(5) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subitems (3) to (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

C. To make the leak and/or remediation determinations in item B, subitems (3) to (5), the owner or operator must:

(1)(a) assess the source of liquids and amounts of liquids by source;

(b) conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

(c) assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) document why such assessments are not needed.

Subp. 2c. **Monitoring and inspection.**

A. An owner or operator required to have a leak detection system under subpart 2, item A, must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

B. After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps must be recorded at least semiannually. If at any time during the postclosure care period the pump operating level is exceeded at units on quarterly or semiannual recording schedules, the owner or operator must return to monthly recording of amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

C. "Pump operating level" is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump. The timing for submission and approval of the proposed pump operating level will be in accordance with subpart 2a, item A.

[For text of subp 3, see M.R.]

Subp. 4. **Closure and postclosure.** Closure and postclosure requirements are as follows:

[For text of item A, see M.R.]

B. After final closure, the owner or operator shall comply with all postclosure requirements contained in parts 7045.0600 to 7045.0606 including maintenance and monitoring throughout the postclosure care period. The owner or operator must:

[For text of subitem (1), see M.R.]

(2) maintain and monitor the leak detection system in accordance with part 7045.0538, subparts 3, item C, subitems (3), unit (d), and (4); and 2c, item B, and comply with all other applicable leak detection system requirements of this part;

(3) maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of parts 7045.0590 and 7045.0592;

(4) prevent run-on and runoff from eroding or otherwise damaging the final cover; and

(5) protect and maintain surveyed bench marks used in complying with part 7045.0638, subpart 3.

[For text of subps 5 to 9, see M.R.]

7045.1305 DILUTION PROHIBITED AS A SUBSTITUTE FOR TREATMENT.

[For text of item A, see M.R.]

B. Dilution of wastes that are hazardous only because they exhibit a characteristic in a treatment system that treats wastes subsequently discharged to a water of the United States pursuant to a permit issued under section 402 of the Clean Water Act (CWA), or that treats wastes for purposes of pretreatment requirements under section 307 of the CWA is not impermissible dilution for purposes of this part unless a method has been specified as the treatment standard in part 7045.1360, or unless the waste is a D003 reactive cyanide wastewater or nonwastewater.

7045.1335 WASTE SPECIFIC PROHIBITIONS; THIRD ONE-THIRD OF REGULATED WASTES.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Applicability as of May 8, 1992.** Effective May

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8, 1992, the following wastes are prohibited from land disposal:

[For text of items A to D, see M.R.]

E. the following wastes identified as hazardous based on a characteristic alone: D004 (nonwastewaters); D009 (nonwastewaters); inorganic solids debris as defined in part 7045.0020, subpart 45a (which also applies to chromium refractory bricks carrying the EPA Hazardous Waste Nos. K048-K052); and RCRA hazardous wastes that contain naturally occurring radioactive materials.

[For text of subp 4, see M.R.]

Subp. 5. **Contaminated soil or debris.** Effective May 8, 1993, debris that is contaminated with wastes listed in Code of Federal Regulations, title 40, part 268.10, 268.11, or 268.12, and debris that is contaminated with any characteristic waste for which treatment standards are established in parts 7045.1350 to 7045.1360 are prohibited from land disposal.

[For text of subps 6 to 10, see M.R.]

Subp. 11. **Applicability as of May 8, 1993.** Effective May 8, 1993, D006 lead materials stored before secondary smelting are prohibited from land disposal. On or before March 1, 1993, the owner or operator of each secondary lead smelting facility shall submit to the commissioner the following, a binding contractual commitment to construct or otherwise provide capacity for storing such D008 wastes prior to smelting which complies with all applicable storage standards, documentation that the capacity to be provided will be sufficient to manage the entire quantity of such D008 wastes, and a detailed schedule for providing such capacity. Failure by a facility to submit such documentation shall render such D008 managed by that facility prohibited from land disposal effective March 1, 1993. In addition, no later than July 27, 1992, the owner or operator of each facility must place in the facility record documentation of the manner and location in which such wastes will be managed pending completion of such capacity, demonstrating that such management capacity will be adequate and complies with all applicable hazardous waste requirements.

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7045.1355 TREATMENT STANDARDS EXPRESSED AS CONCENTRATIONS IN WASTE EXTRACT.

Subpart 1. **Applicability.** Code of Federal Regulations, title 40, part 268.41, Table CCWE, identifies the restricted wastes and the concentrations of their associated constituents that may not be exceeded by the extract of a waste or waste treatment residual developed using the test method in Code of Federal Regulations, title 40, part 261, Appendix II, for the allowable land disposal of such wastes, with the exception of EPA Hazardous Waste Nos. D004, D008, ~~D031~~ K031, K084, K101, K102, P010, P011, P012, P036, and U136, and the concentrations of their associated constituents which may not be exceeded by the extract of a waste or waste treatment residual developed using the test method in Code of Federal Regulations, title 40, part 261, Appendix II, for the allowable land disposal of such wastes. Code of Federal Regulations, title 40, part 268, Appendix II, provides agency guidance on treatment methods that have been shown to achieve the Table CCWE levels for the respective wastes. This guidance is provided to assist generators and owners or operators in their selection of appropriate treatment methods. Compliance with these concentrations is required based on grab samples unless otherwise noted in Code of Federal Regulations, title 40, part 268.43, Table CCW.

Subp. 2. **Combined wastes.** When wastes with differing treatment standards for a constituent of concern are combined for purposes of treatment, the treatment residue must meet the lowest treatment standard for the constituent of concern, except that mixtures of high and low zinc nonwastewater K061 are subject to the treatment standard for high zinc K061.

[For text of subp 3, see M.R.]

7045.1360 TREATMENT STANDARDS EXPRESSED AS SPECIFIED TECHNOLOGIES.

[For text of subps 1 to 10, see M.R.]

Subp. 11. **Recommended technologies to achieve deactivation**

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of characteristics. The treatment standard for many subcategories of the EPA Hazardous Waste Nos. D001, D002, D003, K044, K045, and K047 wastes is listed simply as "Deactivation to remove the characteristics of ignitability, corrosivity, and reactivity." EPA has determined that many technologies, when used alone or in combination, can achieve this standard. The following appendix presents a partial list of these technologies, using the five-letter technology codes established in subpart 3. Use of these specific technologies is not mandatory and does not preclude direct reuse, recovery, or the use of other pretreatment technologies, provided deactivation is achieved and these alternative methods are not performed in units designated as land disposal.

Waste Code/Subcategory	Nonwastewaters	Wastewaters
D001 Ignitable Liquids based on 261.21(a)(1) - Low TOC Non-wastewater Subcategory (containing 1% to <10% TOC)	RORGS INCIN WETOX CHOXD BIODG	Not applicable
D001 Ignitable Liquids based on 261.21(a)(1) - Ignitable Waste-water Subcategory (containing <1% TOC)	Not applicable	RORGS INCIN WETOX CHOXD BIODG
D001 Compressed Gases based on 261.21(a)(3)	RCGAS INCIN FSUBS ADGAS followed by INCIN ADGAS followed by (CHOXD; or CHRED)	Not applicable
D001 Ignitable Reactives based on 261.21(a)(2)	WTRRX CHOXD CHRED STABL INCIN	Not applicable
D001 Ignitable Oxidizers based on 261.21(a)(4)	CHRED INCIN	CHRED INCIN
D002 Acid Subcategory based on 261.22(a)(1) with pH less than or equal to 2	RCORR NEUTR INCIN	NEUTR INCIN
D002 Alkaline Subcategory based on 261.22(a)(1) with pH greater than or equal to 12.5	NEUTR INCIN	NEUTR INCIN
D002 Other Corrosives based on 261.22(a)(2)	CHOXD CHRED INCIN	CHOXD CHRED INCIN

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	STABL	
D003 Water Reactives based on 261.23(a)(2), (3), and (4)	INCIN WTRRX CHOXD CHRED	Not applicable
D003 Reactive Sulfides based on 261.23(a)(5)	CHOXD CHRED INCIN STABL	CHOXD CHRED BIODG INCIN
D003 Explosives based on 261.23(a)(6), (7), and (8)	INCIN CHOXD CHRED	INCIN CHOXD CHRED BIODG CARBN
D003 Other Reactives based on 261.23(a)(1)	INCIN CHOXD CHRED	INCIN CHOXD CHRED BIODG CARBN
K044 Wastewater treatment sludges from the manufacturing and processing of explosives	CHOXD CHRED INCIN	CHOXD CHRED BIODG CARBN INCIN
K045 Spent carbon from the treatment of wastewaters containing explosives	CHOXD CHRED INCIN	CHOXD CHRED BIODG CARBN INCIN
K047 Pink/red water from TNT operations	CHOXD CHRED INCIN	CHOXD CHRED BIODG CARBN INCIN

REPEALER. Minnesota Rules, part 7045.0638, subpart 1a, is repealed.

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