

1 Pollution Control Agency

2

3 Adopted Permanent Rules Relating to Ash Management

4

5 Rules as Adopted

6 7001.0040 APPLICATION DEADLINES.

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

8 Subp. 4. Preliminary application for new mixed municipal
9 solid waste land disposal facility. Applicants shall submit a
10 preliminary permit application for a new mixed municipal solid
11 waste or a new municipal solid waste combustor ash land disposal
12 facility at least 90 days before the anticipated start of a
13 detailed site investigation.

14 7001.3050 PERMIT REQUIREMENTS.

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

16 Subp. 3. Permits-by-rule. The owner or operator of the
17 following facilities is deemed to have obtained a solid waste
18 management facility permit without making application for it,
19 unless the commissioner finds that the facility is not in
20 compliance with the listed part:

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

22 F. storage sites for non-sludge wood waste generated
23 from the wood preparation phase prior to processing or water
24 treatment lime sludge and in compliance with part 7035.2855;

25 G. facilities receiving solid waste from the
26 exploration, mining, milling, smelting, and refining of ores and
27 minerals provided that:

28 (1) the owner or operator does not accept waste
29 for storage, processing, or disposal other than solid waste
30 generated from the exploration, mining, milling, smelting, and
31 refining of ores and minerals;

32 (2) the owner or operator has obtained a permit
33 in accordance with part 7001.0020, item E; and

34 (3) the owner or operator is operating the
35 facility in compliance with chapter 6130; or



1 H. facilities receiving five tons or less of
2 municipal solid waste combustor ash for the purpose of
3 researching in a laboratory ash treatment or utilization
4 provided that ash is stored in compliance with part 7035.2855
5 and disposed of in compliance with part 7035.2885 or used in
6 accordance with agency approvals, and provided that the facility
7 owner or operator notifies the commissioner of the source and
8 quantity of ash and the proposed method for managing the ash
9 after research is complete; notification must also include a
10 description of the research methods and intent, and must be
11 received by the commissioner before ash is received at the
12 facility.

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

14 7001.3075 SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION.

15 Subpart 1. **Application submittals.** The application for a
16 solid waste management facility permit must contain a final
17 application with the appropriate supporting documents, and for
18 mixed municipal solid waste and municipal solid waste combustor
19 ash land disposal facilities, a preliminary application and
20 detailed site evaluation report. The information requirements
21 for the preliminary application are established in part
22 7001.3175 and for the detailed site evaluation in part
23 7001.3275. The information requirements for the final
24 application are set forth in part 7001.3300. The applicant must
25 also submit any information required in parts 7001.3375 to
26 7001.3475 with the final application.

27 Subp. 2. **Timing of application.** Applicants shall submit
28 permit applications for existing and new solid waste management
29 facilities or for reissuance of existing permits in accordance
30 with part 7001.0040, except as provided in items A and B.

31 A. The applicant for a permit to construct a new
32 mixed municipal solid waste or municipal solid waste combustor
33 ash land disposal facility must submit a preliminary application
34 at least 90 days before the work begins on the detailed site
35 evaluation required by part 7001.3275.

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

2 7001.3275 DETAILED SITE EVALUATION REPORT.

3 Subpart 1. **Scope.** The applicant shall submit four copies
4 of a detailed site evaluation report for all mixed municipal
5 solid waste land disposal facilities. The report must include
6 the information required in subparts 2 to 8 and supporting
7 documentation. The report must discuss whether the site meets
8 the requirements of part 7035.2815. The applicant shall submit
9 four copies of a detailed site evaluation report for all
10 municipal solid waste combustor ash land disposal facilities.
11 The report must include the information required in subparts 2
12 to 8 with the exception of subpart 4, item D, along with
13 supporting documentation. The report must discuss whether the
14 site meets the requirements of part 7035.2885.

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

16 Subp. 3. **Soils for cover and liner construction.** The
17 applicant must evaluate the availability and suitability of soil
18 for cover and liner construction. This evaluation must include
19 a description of the source and quantity of the soil, soil
20 descriptions and unified classifications, particle size
21 analyses, permeability at specified moisture and densities,
22 Atterberg limits, and, for liner materials, cation exchange
23 capacity. The determination must consist of the evaluations
24 required in part 7035.2815, subpart 8. The evaluation must
25 assess whether the available soils will meet the requirements of
26 part 7035.2815, subparts 6 and 7 for a mixed municipal solid
27 waste land disposal facility, and part 7001.2885, subparts 10
28 and 11 for a municipal solid waste combustor ash land disposal
29 facility.

30 [For text of subps 4 to 8, see M.R.]

31 7001.3300 GENERAL INFORMATION REQUIREMENTS FOR FINAL APPLICATION.

32 The applicant shall submit to the commissioner four copies
33 of the final application and supporting materials for any solid
34 waste management facility. The applicant must use a horizontal
35 scale of one inch equals 200 feet in all drawings and plans,

1 unless otherwise specified. The applicant must mark all plans
2 and reports with the initial date prepared. All subsequent
3 revisions must be dated and include a notation of what revisions
4 were made. The application must contain:

5 A. a general description of the facility;

6 B. an industrial waste management plan in accordance
7 with part 7035.2535, subpart 5, to include a description of the
8 waste types to be handled at the facility and the quantities of
9 each waste type including a procedure for determining the
10 analyses necessary to treat, store, or dispose of the waste
11 properly in accordance with parts 7035.2525 to 7035.2885.

12 Municipal solid waste combustor ash land disposal facility
13 applications must explain how the owner or operator will ensure
14 that industrial wastes other than wastes specifically approved
15 by the commissioner in accordance with part 7035.2885, subpart
16 3, will not be disposed of at the facility;

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

18 E. the contingency action plan required by part
19 7035.2615, including the information, if applicable, in parts
20 7035.2815, subpart 15, and 7035.2825 to 7035.2885;

21 [For text of items F to N, see M.R.]

22 O. any additional geologic and other location
23 information required to demonstrate compliance with parts
24 7035.2615, 7035.2815, subpart 15, and 7035.2825 to 7035.2885;

25 P. an operations and maintenance manual that includes:

26 (1) the facility description and design
27 parameters;

28 (2) emergency shutdown procedures;

29 (3) operation variables and procedures, including
30 the proposed frequency and materials to be used for intermittent
31 and intermediate cover;

32 (4) trouble-shooting procedures;

33 (5) preventive maintenance requirements;

34 (6) safety requirements and procedures;

35 (7) equipment maintenance records;

36 (8) site inspection records; and

1 (9) an inspection schedule for facility
 2 maintenance, such as controlling erosion, vegetation growth, and
 3 rodents;

4 Q. a construction inspection, quality control, and
 5 quality assurance plan showing a detailed inspection schedule
 6 for construction completed at the site; the sampling procedures
 7 including number and tests completed; the procedures for
 8 interpretation and submission of inspection and test results to
 9 the commissioner; and all other material required to comply with
 10 parts 7035.2525 to 7035.2885; and

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

12 7001.3480 FINAL APPLICATION INFORMATION REQUIREMENTS FOR
 13 MUNICIPAL SOLID WASTE COMBUSTOR ASH LAND DISPOSAL FACILITIES.

14 The application for a municipal solid waste combustor ash
 15 land disposal facility permit must include the information in
 16 items A to I in addition to the information required by part
 17 7001.3300.

18 A. A description of the ash and any other wastes
 19 proposed to be handled at the facility according to part
 20 7035.2885, subpart 3, including the source and chemical and
 21 physical characteristics of the ash or other waste.

22 B. The proposed capacity of the site.

23 C. A description of how the requirements of part
 24 7035.2885, subparts 4 and 5, regarding maximum leachable
 25 contaminant levels will be met. If the design of the land
 26 disposal facility liner does not meet the minimum specifications
 27 of part 7035.2885, subpart 11, item P, the application must
 28 include a contingency action plan describing steps which the
 29 owner or operator will take if the results of ash testing or
 30 actual leachate analysis exceed the limits allowed based on the
 31 design of the facility. All applications must include an
 32 assessment of the results of ash testing and actual leachate
 33 analysis representative of the ash to be accepted at the
 34 facility. This assessment must include the following items:

35 (1) calculations of "results," as defined in part

1 7035.2885, subpart 4, item A;

2 (2) assessment of trends over time in the results
3 of ash testing and actual leachate analysis; and

4 (3) descriptions of any anticipated changes in
5 the design of, or waste combusted at, the waste combustor or
6 combustors which generate ash to be accepted at the land
7 disposal facility, and predictions of how those changes will
8 affect the chemical and physical characteristics of the ash
9 disposed of at the facility.

10 D. A description of the status of the Environmental
11 Assessment Worksheet or Environmental Impact Statement.

12 E. Detailed plans and an engineering report
13 describing how the applicant will design, construct, operate,
14 and maintain the facility to comply with the requirements of
15 parts 7035.2525 to 7035.2805 and 7035.2885. The submission must
16 address the following items as specified in part 7035.2885:

17 (1) the liner system, leak detection, and the
18 leachate collection and removal system;

19 (2) control of run-off and run-on;

20 (3) management of collection, conveyance, and
21 holding facilities associated with run-off and run-on control
22 systems;

23 (4) control of wind dispersion of particulate
24 matter;

25 (5) treatment of collected run-off, run-on, and
26 leachate; and

27 (6) a phase development plan consistent with site
28 capacity including two cross-sections per phase with a vertical
29 scale of one inch equals ten feet and a horizontal scale of one
30 inch equals 100 feet, perpendicular to one another, showing the
31 existing grade, the excavation grade, final grade, the water
32 table profile, and the profile and identity of the underlying
33 geology according to part 7035.2885.

34 The submission must include the design specifications,
35 materials and test data, the rationale for the design, and
36 identification of elements critical to the performance of the

1 design.

2 F. Geologic and hydrogeologic information necessary
3 to demonstrate compliance with part 7035.2885, as submitted in
4 the hydrogeologic report required in part 7001.3275, subpart 2.

5 G. An operation and maintenance manual detailing the
6 procedures site personnel will follow in order to comply with
7 parts 7035.2525 to 7035.2805 and 7035.2885.

8 H. A description of how the applicant will inspect
9 the facility, including the liner and cover systems, in order to
10 meet the requirements of part 7035.2885. The applicant must
11 include this information in the inspection plan submitted under
12 part 7001.3300, item D.

13 I. Detailed plans and an engineering report
14 describing the final cover applied to each cell at closure under
15 parts 7035.2525 to 7035.2805 and 7035.2885 and a description of
16 how the applicant will maintain and monitor the facility after
17 closure under parts 7035.2525 to 7035.2805 and 7035.2885. The
18 applicant must include this information in the closure and
19 postclosure plans submitted under part 7001.3300, item J.

20 7035.0300 DEFINITIONS.

21 Subpart 1. **Scope.** As used in parts 7035.0300 to
22 7035.2915, the following terms have the meanings given them in
23 this part.

24 [For text of subps 2 to 4, see M.R.]

25 Subp. 5. **Ash.** "Ash" means the incombustible material that
26 remains after a fuel or solid waste is combusted.

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

28 Subp. 7a. **Bottom ash.** "Bottom ash" means the residues
29 that remain in a combustion chamber after combustion. An owner
30 or operator may include ash which is carried out of a combustion
31 chamber by the flow of gases and captured by boiler tubes,
32 economizers, or other equipment which captures particulate
33 matter before gases enter air pollution control equipment.

34 [For text of subps 8 to 15, see M.R.]

35 Subp. 15a. **Combined ash.** "Combined ash" means ash which

1 consists of a mixture of fly ash and bottom ash.

2 [For text of subparts 16 to 34, see M.R.]

3 Subp. 35. **Energy recovery facility.** "Energy recovery
4 facility" means a facility used to capture the heat value of
5 solid waste for conversion to steam, electricity, or immediate
6 heat by direct combustion or by first converting it into an
7 intermediate fuel product. ~~Energy-recovery-facilities-include,~~
8 ~~but-are-not-limited-to,~~ Municipal solid waste combustors are
9 included in the definition of energy recovery facilities.

10 Subp. 35a. **EPA Method 1311.** "EPA Method 1311" means the
11 Toxicity Characteristic Leaching Procedure issued by the United
12 States Environmental Protection Agency as EPA Method 1311 as
13 provided by the Federal Register, volume 55, number 126, June
14 29, 1990.

15 Subp. 35b. **EPA Method 1312.** "EPA Method 1312" means the
16 Synthetic Precipitation Leach Test for Soils, which is
17 incorporated by reference in part 7035.0605.

18 Subp. 35c. **EPA SW-846.** "EPA SW-846" means Test Methods
19 for Evaluating Solid Waste, EPA SW-846, Third Edition, which is
20 incorporated by reference in part 7035.0605.

21 [For text of subps 36 to 38, see M.R.]

22 Subp. 38a. **Fly ash.** "Fly ash" means ash generated by a
23 combustion facility which is carried out of the combustion
24 chamber by the flow of gases and collected by air pollution
25 control equipment before exhaust gases leave the facility. An
26 owner or operator may include ash which is captured by boiler
27 tubes, economizers, or other equipment which captures
28 particulate matter before gases enter air pollution control
29 equipment.

30 [For text of subps 39 to 44, see M.R.]

31 Subp. 45. **Industrial solid waste.** "Industrial solid waste"
32 means all solid waste generated from an industrial or
33 manufacturing process and solid waste generated from
34 nonmanufacturing activities such as service and commercial
35 establishments. Industrial solid waste does not include office
36 materials, restaurant and food preparation waste, discarded

1 machinery, demolition debris, municipal solid waste combustor
2 ash, or household refuse.

3 [For text of subps 46 to 48, see M.R.]

4 Subp. 49. **Intermittent cover.** "Intermittent cover" means
5 cover material that is spread and compacted on the top and side
6 slopes of compacted solid waste at least as often as the end of
7 each operating week unless less frequent placement is approved
8 according to part 7035.2885, subpart 10, item A, in order to
9 control fire, infiltration, dust emissions, and erosion.

10 [For text of subps 50 to 62, see M.R.]

11 Subp. 62a. **Maximum leachable contaminant levels.** "Maximum
12 leachable contaminant levels" means the numerical standards for
13 the levels in leachate of substances listed in part 7035.2885,
14 subpart 5. They are used to determine design and operational
15 requirements which apply to a municipal solid waste combustor
16 ash land disposal facility.

17 [For text of subps 63 to 67, see M.R.]

18 Subp. 67a. **Municipal solid waste combustor ash.**
19 "Municipal solid waste combustor ash" means ash from combustion
20 of mixed municipal solid waste or refuse-derived fuel at a waste
21 combustor. Municipal solid waste combustor ash does not include
22 ash from waste combustors which accept hazardous waste except in
23 household quantities as allowed by part 7045.0120, item A.
24 Municipal solid waste combustor ash which is managed according
25 to parts 7035.2885 to 7035.2915 is a solid waste, and is not
26 subject to regulation under chapter 7045. Ash from a facility
27 that burns a mixture of mixed municipal solid waste or
28 refuse-derived fuel and infectious waste or other nonhazardous
29 wastes such that 20 percent or more of its heat input is from
30 mixed municipal solid waste or refuse-derived fuel is considered
31 municipal solid waste combustor ash. Ash from a facility that
32 burns a mixture of mixed municipal solid waste or refuse-derived
33 fuel with coal or other fuels is considered municipal solid
34 waste combustor ash if the percentage of mixed municipal solid
35 waste or refuse-derived fuel is such that the facility is
36 considered a waste combustor under applicable state and federal

1 rules and statutes.

2 Subp. 67b. **Municipal solid waste combustor ash land**
3 **disposal facility.** "Municipal solid waste combustor ash land
4 disposal facility" means a facility used to dispose of municipal
5 solid waste combustor ash in or on the land.

6 [For text of subps 68 to 88, see M.R.]

7 Subp. 89. **Refuse.** "Refuse" means putrescible and
8 nonputrescible solid wastes, including garbage, rubbish, ashes,
9 incinerator ash, incinerator residue, waste combustor ash,
10 street cleanings, and market and industrial solid wastes, and
11 including municipal treatment wastes which do not contain free
12 moisture.

13 [For text of subps 90 to 93, see M.R.]

14 Subp. 93a. **Rolling data set.** "Rolling data set" means a
15 set of data, such as test results, which represents a specified
16 period of time; at a specified frequency the data set changes to
17 include more recent data and exclude data which are older than
18 the beginning of the specified time period.

19 [For text of subps 94 to 111, see M.R.]

20 Subp. 111a. **Treatment.** "Treatment" means the physical or
21 chemical change of a waste for the purpose of reducing or
22 controlling pollution or the release of contaminants into the
23 environment.

24 [For text of subps 112 to 115, see M.R.]

25 Subp. 115a. **Waste combustor.** "Waste combustor" means any
26 stationary source, emissions unit, or emission facility where
27 waste or refuse-derived fuel is combusted, and includes
28 incinerators, energy recovery facilities, or other combustion
29 devices.

30 [For text of subps 116 to 121, see M.R.]

31 7035.0400 GENERAL REQUIREMENTS.

32 All solid waste must be stored, collected, transferred,
33 transported, used, processed, and disposed of, or reclaimed in a
34 manner consistent with requirements of parts 7035.0300 to
35 7035.2915. The agency is responsible for enforcement of these

1 parts and encourages cooperation of municipalities which may
2 adopt these parts for use in local laws, ordinances, or
3 regulations.

4 7035.0600 VARIANCES.

5 Any person who applies for a variance from any requirement
6 of parts 7035.0300 to 7035.2915 shall comply with part
7 7000.0700. An application for a variance must be acted upon by
8 the agency according to Minnesota Statutes, section 116.07,
9 subdivision 5, and part 7000.0700. However, no variance may be
10 granted that would result in noncompliance with applicable
11 federal rules and regulations for solid waste.

12 7035.0605 AVAILABILITY OF REFERENCES.

13 The documents needed for analyzing and classifying soils as
14 required in parts 7035.0300 to 7035.2915 may be obtained by
15 contacting the Engineering Library of the University of
16 Minnesota, through the Minitex interlibrary loan system, and
17 requesting the standards from the American Society for Testing
18 and Material, in the Annual Book of ASTM Standards, 1916 Race
19 Street, Philadelphia, Pennsylvania 19103.

20 The publication for classification of wetlands, titled
21 "Classification of Wetlands and Deep Water Habitats of the
22 United States," may be obtained through the Minitex interlibrary
23 loan system or by requesting the publication from the
24 Superintendent of Documents, United States Government Printing
25 Office, Washington, D.C. 20402.

26 Test Methods for Evaluating Solid Waste, EPA SW-846, Third
27 Edition, November 1986, issued by the United States
28 Environmental Protection Agency (EPA), is incorporated by
29 reference. Sections of this document which are directly
30 relevant to parts 7035.2885 to 7035.2915 are available through
31 the Minitex interlibrary loan system. The entire document is
32 available from EPA Environmental Monitoring and Support
33 Laboratory, Cincinnati, Ohio, 45268. It is not subject to
34 frequent change.

35 The document Standard Number 54: Flexible Membrane Liners,

1 May 1990, issued by the National Sanitation Foundation, is
2 incorporated by reference. It is available through the Minitex
3 interlibrary loan system. It is not subject to frequent change.

4 EPA Document 600/4-79-020 Methods for Chemical Analyses of
5 Water and Wastes, appearing in Code of Federal Regulations,
6 title 40, section 136, 1990, is incorporated by reference. The
7 document is available through the Minitex interlibrary loan
8 system and EPA Environmental Monitoring and Support Laboratory,
9 Cincinnati, Ohio, 45268. It is not subject to frequent change.

10 EPA Method 1312: the Synthetic Precipitation Leach Test
11 for Soils (draft document, no date available) is incorporated by
12 reference. The method is available through the Minitex
13 interlibrary loan system. A copy of the method may also be
14 obtained from the commissioner. The draft method is not subject
15 to frequent change.

16 EPA Method 8290, November 1990, is incorporated by
17 reference. The method is available through the Minitex
18 interlibrary loan system and EPA Office of Solid Waste,
19 Characterization and Assessment Division, Technical Assessment
20 Branch, OS-331, Washington, D.C., 20460. The method is not
21 subject to frequent change.

22 American Society of Testing and Materials (ASTM) Methods
23 D3173 and D3174 are incorporated by reference. These methods
24 are published in the Annual Book of ASTM Standards: Part 26,
25 Gaseous Fuels; Coal and Coke; Atmospheric Analysis, 1981
26 Edition. This publication is available through the Minitex
27 interlibrary loan system. The methods are not subject to
28 frequent change.

29 7035.0700 STORAGE OF SOLID WASTE AT INDIVIDUAL PROPERTIES.

30 [For text of subs 1 to 5, see M.R.]

31 Subp. 6. **Municipal solid waste combustor ash.** Municipal
32 solid waste combustor ash must be stored in a manner which
33 minimizes the emission of fugitive dust and escape of liquid
34 which has been in contact with ash. Liquid that drains from the
35 ash must be collected and reused at the facility, unless the

1 commissioner finds that reuse of the liquid is not feasible
2 based on the design of the facility, in which case the
3 commissioner may approve another management method. Floor or
4 surface drains serving ash collection, storage, and handling
5 areas must not be connected to uncontaminated storm water
6 run-off drains. Except for ash samples collected and stored
7 according to part 7035.2910, a municipal solid waste combustor
8 may not store ash for more than ±5 five calendar days after the
9 date the ash was generated. The maximum amount of ash stored at
10 the facility must not exceed ±5 five days of daily production.
11 The commissioner shall approve storage of a larger quantity of
12 ash or storage for a longer period of time if the waste is kept
13 in a contained area meeting the requirements of a solid waste
14 storage facility under part 7035.2885.

15 7035.0800 COLLECTION AND TRANSPORTATION OF SOLID WASTE.

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

17 Subp. 2. **Containers or vehicles.** Vehicles or containers
18 used for the collection and transportation of garbage and
19 similar putrescible wastes, or refuse containing such materials,
20 must be covered, leakproof, durable, and of easily cleanable
21 construction. They must be cleaned to prevent nuisances,
22 pollution, or insect breeding, and must be maintained in good
23 repair.

24 Vehicles or containers used for the transportation of
25 municipal solid waste combustor ash must be covered to prevent
26 fugitive dust emissions and constructed to prevent leaking of
27 fluid which has been in contact with ash.

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

29 7035.2525 SOLID WASTE MANAGEMENT FACILITIES GOVERNED.

30 Subpart 1. **General requirements.** Parts 7035.2525 to
31 7035.2915 apply to owners and operators of all facilities that
32 treat, transfer, store, process, or dispose of solid waste
33 except as specifically provided otherwise in this part.

34 Subp. 2. **Exceptions.** Parts 7035.2525 to 7035.2915 do not
35 apply to the following solid waste management facilities, except

1 as indicated:

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

3 7035.2535 GENERAL SOLID WASTE MANAGEMENT FACILITY REQUIREMENTS.

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

5 Subp. 2. **Required notices.** The owner or operator of a
6 solid waste management facility must notify the agency before
7 transferring ownership or operation of a solid waste management
8 facility during its operating life or during the postclosure
9 care period. The owner or operator must also notify the new
10 owner or operator in writing of the requirements of parts
11 7035.2525 to 7035.2915 and existing permit conditions. No
12 ownership or operation transfer may occur without a permit
13 modification as required in part 7001.0190, subpart 2. The
14 facility must be in substantial compliance with all agency rules
15 before the agency will approve a transfer.

16 Subp. 3. **Security.** During the active life of the solid
17 waste management facility, the closure period, and postclosure
18 care period, as required, the owner or operator must prevent, by
19 use of a fence or similar device, the unauthorized entry of
20 persons or livestock onto the facility, unless the owner or
21 operator demonstrates to the commissioner that:

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

23 B. disturbance of the waste or equipment will not
24 cause a violation of parts 7035.2525 to 7035.2915.

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

26 Subp. 5. **Industrial solid waste management.** All
27 industrial solid waste delivered to a solid waste management
28 facility must be managed by the owner or operator to protect
29 human health and the environment. The industrial solid waste
30 management plan required under part 7001.3300 must address items
31 A to C, except that the industrial solid waste management plan
32 for a municipal solid waste combustor ash land disposal facility
33 need not comply with items B and C.

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

35 7035.2545 PERSONNEL TRAINING.

1 Subpart 1. **General.** Solid waste management facility
2 personnel must successfully complete a program of classroom
3 instruction or on-the-job training. The program must prepare
4 facility personnel to maintain compliance with parts 7035.2525
5 to 7035.2915. Personnel must complete all training within six
6 months after November 15, 1988, or within six months after the
7 date of employment. The owner or operator must record all
8 personnel training on the facility operating record and submit
9 the dates of training in the annual report.

10 [For text of subps 2 to 4, see M.R.]

11 7035.2555 LOCATION STANDARDS.

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

13 Subp. 2. **Other location standards.** An owner or operator
14 may not establish or construct a solid waste management facility
15 in the following areas:

16 A. within a shoreland or wild and scenic river land
17 use district governed by chapters 6105 and 6120;

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

19 7035.2575 OPERATING RECORD.

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

21 Subp. 2. **Record information.** The owner or operator of a
22 solid waste management facility must record and maintain the
23 following information in the operating record for a minimum of
24 five years after closure of the facility or until any pending
25 enforcement action is resolved:

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

27 G. For a municipal solid waste combustor ash land
28 disposal facility, the amount by volume or weight of municipal
29 solid waste combustor ash received for each day from each ash
30 generator which delivers ash to the facility, and the date
31 received.

32 7035.2585 ANNUAL REPORT.

33 The owner or operator of a solid waste management facility
34 shall prepare and submit a single copy of an annual report to

1 the commissioner no later than February 1 for the preceding
2 calendar year. A report form and instructions may be obtained
3 from the commissioner. The annual report must cover all
4 facility activities during the previous calendar year and must
5 include the following information:

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

7 H. the summary evaluation of the groundwater
8 monitoring program required under parts 7035.2815, subpart 14,
9 item Q; and 7035.2885, subpart 16;

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

11 7035.2625 CLOSURE.

12 Subpart 1. **Closure.** The owner or operator of a solid
13 waste management facility must cease to accept waste and must
14 immediately close the facility in compliance with this part and
15 parts 7035.2635 and 7035.2815 to 7035.2915, when:

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

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

18 Subp. 3. **Submittal and contents of closure plan.** The
19 owner or operator of a solid waste management facility shall
20 submit a closure plan with the permit application, or as
21 required by a closure document, or in order to establish
22 financial assurance mechanisms in accordance with part
23 7035.2695. For unpermitted land disposal sites, the owner or
24 operator shall submit a closure plan within 90 days after
25 November 15, 1988. The agency shall approve the closure plan as
26 part of the permit issuance procedure or as part of a submittal
27 required by a closure document or other enforcement action.
28 Compliance with the approved closure plan must be a condition of
29 any permit, order, closure document, or stipulation agreement
30 issued for the facility. Before approving the closure plan, the
31 agency must ensure that the closure plan is consistent with
32 subparts 2, 4, and 5, part 7035.2635, and the applicable closure
33 requirements of parts 7035.2665; 7035.2815, subpart 16; and
34 7035.2825 to 7035.2915.

35 A copy of the approved closure plan and all revisions to

1 the plan must be kept at the facility until closure is completed
2 and certified under part 7035.2635. At the time of closure, the
3 agency will issue a closure document in accordance with part
4 7001.3055. The plan must identify steps needed to close each
5 fill phase, if appropriate, and the entire site at the end of
6 its operating life. The closure plan must include:

7 A. A description of how and when each fill phase and
8 the entire facility will be closed. The description must
9 identify how the requirements of subparts 2 and 5, parts
10 7035.2635; and 7035.2815 to 7035.2915 will be complied with.
11 The description must include the estimated year of closure and a
12 schedule for completing each fill phase.

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

14 [For text of subps 4 and 5, see M.R.]

15 7035.2635 CLOSURE PROCEDURES.

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

17 Subp. 2. **Closure procedures.** If one or more of the
18 conditions of part 7035.2625, subpart 1 exists, the owner or
19 operator must:

20 A. Complete the appropriate activities outlined in
21 the approved closure plan, closure document, stipulation
22 agreement, and parts 7035.2815 to 7035.2915, as appropriate.

23 B. Complete final closure activities consisting of at
24 least:

25 [For text of subitems (1) and (2), see M.R.]

26 (3) submitting to the county recorder and the
27 commissioner a detailed description of the waste types,
28 including mixed municipal, industrial, and demolition debris,
29 accepted at the facility and what the facility was used for,
30 together with a survey plat of the site. The plat must be
31 prepared and certified by a land surveyor registered in
32 Minnesota. The landowner must record a notation on the deed to
33 the property or on some other instrument normally examined
34 during a title search, that will in perpetuity notify any
35 potential purchaser of the property of any special conditions or

1 limitations for use of the site, as set out in the closure plan
2 and closure document.

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

4 7035.2645 POSTCLOSURE.

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

6 Subp. 2. **Postclosure plan.** The landowner and the facility
7 owner must keep a copy of the approved plan and amendments at
8 the facility until the postclosure care period begins. During
9 the postclosure care period, the plan must be kept by the
10 contact person identified in item C. This plan must identify
11 the activities to be carried on during the postclosure care
12 period and the frequency of these activities, and must include
13 at least:

14 A. A description, schedule, and estimated costs of
15 planned monitoring activities to comply with parts 7035.2815,
16 subparts 10 and 14, and 7035.2885, subpart 16, during the
17 postclosure care period.

18 B. A description, schedule, and estimated costs of
19 the inspection and maintenance activities planned to ensure the
20 integrity of the final cover and other containment systems
21 according to parts 7035.2815, subpart 13, and 7035.2885, subpart
22 15, and the function of the facility monitoring equipment
23 according to parts 7035.2815, subpart 14, and 7035.2885, subpart
24 16.

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

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

27 7035.2655 POSTCLOSURE CARE AND USE OF PROPERTY.

28 Subpart 1. **Postclosure care requirements.** Postclosure
29 care requirements are as follows:

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

31 B. During the postclosure care period, based on the
32 results of sampling, analysis, and other pertinent information,
33 the commissioner may reevaluate and modify the closure document
34 to the extent postclosure care is needed at a facility based on
35 compliance with the requirements of item C; subpart 2; parts

1 7035.2565, and 7035.2815 to 7035.2915; and gas, leachate, or
2 ground and surface water monitoring results.

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

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

5 FINANCIAL REQUIREMENTS

6 7035.2665 SCOPE.

7 Parts 7035.2685 to 7035.2805 apply to owners and operators
8 of mixed municipal solid waste land disposal facilities and
9 municipal solid waste combustor ash land disposal facilities.

10 7035.2885 MUNICIPAL SOLID WASTE COMBUSTOR ASH LAND DISPOSAL
11 FACILITIES.

12 Subpart 1. **Scope.** The requirements of subparts 2 to 18
13 apply to landowners and owners and operators of facilities that
14 dispose of municipal solid waste combustor ash in or on the
15 land, except as provided in subpart 2.

16 Subp. 2. **Exemptions.** ~~Upon application to and approval by~~
17 ~~the commissioner, the owner and operator of a land disposal~~
18 ~~facility which disposes of waste combustor ash which meets the~~
19 ~~requirements of items A and B are exempt from the requirements~~
20 ~~of this part. The owner or operator must maintain evidence of~~
21 ~~compliance with this part in the operating record required by~~
22 ~~part 7035.2575~~ None.

23 ~~A. The design of the land disposal facility at a~~
24 ~~minimum must comply with the requirements of part 7035.2815,~~
25 ~~subparts 6, item B, and 7, including consideration of whether~~
26 ~~leachate from the municipal solid waste combustor ash will be~~
27 ~~compatible with the liner system.~~

28 ~~B. Results of ash testing must meet the requirements~~
29 ~~of subitems (1) to (3). Results must be calculated according to~~
30 ~~subitem (4). If the ash is a mixture of fly and bottom ash,~~
31 ~~then the fly ash tested alone must meet the requirements of this~~
32 ~~item.~~

33 ~~(1) Results of total composition testing for~~
34 ~~dioxins and furans performed according to part 7035.2910,~~
35 ~~subpart 4, item A, subitem (3), expressed as total 2,3,7,8-TCDD~~

1 equivalence, must be lower than one µg/kg.

2 (2) Results of testing ash using EPA method 1312
3 must be lower than one-half the maximum leachable contaminant
4 levels given in subpart 5.

5 (3) If ash will be codisposed with acidic wastes
6 or wastes that may produce acids as a result of decomposition,
7 results of testing ash leaching potential using EPA method 1311
8 in accordance with part 7035.2910, subpart 12, item A, must be
9 lower than twice the maximum leachable contaminant levels given
10 in subpart 5.

11 (4) For the purpose of subitems (1) to (3),
12 "results" means the upper 80 percent confidence limit of a
13 rolling data set calculated according to units (a) to (c):

14 (a) The rolling data set must consist of
15 results of the specified test for the preceding 12 months, or
16 the time period since a change was made in waste combusted,
17 waste combustor operations, or ash processing which
18 significantly alters ash quality, whichever time period is
19 shorter.

20 (b) If data from only one quarter are used
21 to calculate results, the owner or operator must calculate the
22 upper 80 percent confidence limit for the data using equations
23 for random sampling shown in Table 9-1 of EPA-SW-846. Part
24 7035.0605 incorporates this document by reference and
25 establishes its availability.

26 (c) If data from two or more quarters are
27 used to calculate results, the owner or operator must calculate
28 the upper 80 percent confidence limit for the data using
29 equations for stratified random sampling shown in Table 9-1 of
30 EPA-SW-846, using each quarter as a stratum. The fraction of
31 the population represented by each stratum (W_k) must be selected
32 based on the number of quarters of data to be used and the
33 relative amounts of ash produced during each quarter.

34 Subp. 3. Acceptable wastes. Only municipal solid waste
35 combustor ash and other wastes, excluding municipal solid waste,
36 approved by the commissioner according to the procedures in this

1 subpart may be disposed of in a waste combustor ash land
2 disposal facility.

3 The owner or operator must submit requests for approval to
4 codispose of other wastes to the commissioner in writing.
5 Requests must state the physical and chemical characteristics of
6 the waste, including results of EPA Method 1311 leach test, EPA
7 Method 1312 leach test, and total composition analysis. The
8 waste must be analyzed for total composition for the parameters
9 in part 7035.2910, subpart 4, item A, tables (1) and (2). Leach
10 test samples must be analyzed for all parameters detected by
11 total composition analysis. The request must also include an
12 assessment of the potential for the waste to affect the leaching
13 potential of waste combustor ash and other wastes previously
14 approved for codisposal. The commissioner shall ~~determine~~
15 ~~whether approve~~ a waste ~~is-acceptable~~ for codisposal based-on
16 ~~the-potential-for-the-waste-to-increase-the-quantity-or-toxicity~~
17 ~~of~~ in a municipal solid waste combustor ash disposal facility
18 only if the commissioner determines that codisposal of that
19 waste will not significantly increase the movement of leachate
20 generated at the facility, to-cause-failure-of-engineered
21 systems-such-as-the-liner-and-leachate-collection-system,-or-to
22 increase-potential-for which contaminates outside the codisposal
23 ash phase by leakage, leaching, or fugitive dust emissions.

24 Subp. 4. Limitation of leachable contaminants. After
25 January 1, 1993, the owner or operator of a waste combustor ash
26 land disposal facility may not dispose of ash which exceeds the
27 maximum leachable contaminant levels of subpart 5, unless the
28 facility design either meets or exceeds the requirements of
29 subparts 10, item C, subitem (3); and 11, item O or P, or if the
30 facility is a type II cell which meets or exceeds the
31 requirements in part 7035.2915 and is approved prior to or
32 during the nine-month period immediately following adoption of
33 parts 7001.0040 to 7035.2915, whichever applies. Compliance
34 with this subpart must be based on results of testing ash using
35 EPA Method 1312 as required by part 7035.2910, except as
36 provided by items B to D. Alternatively, the commissioner may

1 approve treatment within the land disposal facility if treatment
2 reduces contaminant mobility so that any pollutants detected in
3 leachate will not exceed the maximum leachable contaminant
4 levels of subpart 5. A request for approval of an in-place
5 treatment method must include results of a pilot scale
6 demonstration of the effectiveness of the treatment method.

7 A. For the purpose of this subpart, "results" means
8 the upper 80 percent confidence limit of a rolling data set
9 consisting of results of EPA Method 1312, or actual leachate
10 according to items B and C, calculated as ~~specified in subpart~~
11 ~~27-item-B7-subitem-(4)~~. follows:

12 (1) the rolling data set must consist of results
13 of the specified test for the preceding 12 months, or the time
14 period since a change was made in waste combusted, waste
15 combustor operations, or ash processing which significantly
16 alters ash quality, whichever time period is shorter;

17 (2) if data from only one quarter are used to
18 calculate results, the owner or operator must calculate the
19 upper 80 percent confidence limit for the data using equations
20 for random sampling shown in Table 9-1 of EPA SW-846. Part
21 7035.0605 incorporates this document by reference and
22 establishes its availability; and

23 (3) if data from two or more quarters are used to
24 calculate results, the owner or operator must calculate the
25 upper 80 percent confidence limit for the data using equations
26 for stratified random sampling shown in Table 9-1 of EPA SW-846,
27 using each quarter as a stratum. The fraction of the population
28 represented by each stratum (W_k) must be selected based on the
29 number of quarters of data to be used and the relative amounts
30 of ash produced during each quarter.

31 B. The owner or operator may calculate results as
32 required by item A using actual leachate analyses rather than
33 EPA Method 1312 analyses for ash from a given waste combustor
34 for one or more quarters if the following conditions are all
35 true:

36 (1) the leachate analyzed was from a land

1 disposal facility phase which was filled to one-half or more of
 2 the phase capacity, where a phase is an area of a land disposal
 3 facility which is served by a leachate collection system which
 4 may be sampled independently;

5 (2) ash from the waste combustor makes up 90
 6 percent or more of the waste in the phase;

7 (3) ash generated by the waste combustor during
 8 the quarter was disposed in the phase;

9 (4) the leachate analyzed was collected during
 10 the quarter ~~and more than 60 days after collection of leachate~~
 11 ~~samples which are also used to calculate results to determine~~
 12 ~~compliance with this part; and~~

13 (5) samples used to calculate results for
 14 consecutive quarters were collected at least 60 days apart; and

15 (6) the leachate samples were collected according
 16 to a water quality and leachate monitoring protocol approved by
 17 the commissioner as part of the operations manual required under
 18 parts 7001.3480, item G; and 7035.2815, subpart 14, item G.

19 C. ~~if a municipal solid waste combustor ash land~~
 20 ~~disposal facility has a cell which contains 90 percent or more~~
 21 ~~ash from only one waste combustor, and analyses of actual~~
 22 ~~leachate samples from that cell exceeds EPA Method 1312 analyses~~
 23 ~~of ash samples collected during the same quarter, actual~~
 24 ~~leachate analyses must be used in place of EPA Method 1312 ash~~
 25 ~~analyses for that quarter for calculating results to determine~~
 26 ~~compliance with this subpart. if results of testing leachate as~~
 27 ~~required by subpart 16, item B, exceed the maximum leachable~~
 28 ~~contaminant levels of subpart 5, all new portions of the land~~
 29 ~~disposal facility which accept ash from the same waste combustor~~
 30 ~~or waste combustors must comply with the final cover~~
 31 ~~requirements of subpart 10, item C, subitem (3), and the liner~~
 32 ~~requirements of subpart 11, item O. if results of testing~~
 33 ~~leachate as required by subpart 16, item B, exceed the maximum~~
 34 ~~concentration of contaminants for characteristic of extraction~~
 35 ~~procedure (EP) toxicity established in part 7045.0131, subpart~~
 36 ~~8, all new portions of the land disposal facility which accept~~

1 ash from the same waste combustor or waste combustors must
2 comply with the final cover requirements of subpart 10, item C,
3 subitem (3), and the liner requirements of subpart 11, item P.
4 For the purpose of this item, "results" means the upper 80
5 percent confidence limit of a rolling data set consisting of
6 results of leachate testing for the preceding 12 months. The
7 upper 80 percent confidence limit must be calculated using the
8 equations presented in subpart 3, item A, subitems (1) to (3).
9 The commissioner may approve an exemption from this part if the
10 owner or operator demonstrates that the leachate produced in a
11 new portion of the facility may reasonably be expected to not
12 exceed the limits cited in this subpart, based on changes made
13 such as pretreatment of ash prior to disposal.

14 D. If an owner or operator demonstrates an inability
15 to meet the requirements of this subpart, the commissioner may
16 grant an extension of up to two years if the commissioner
17 determines that the owner or operator has attempted to meet the
18 requirements of this part, and the agency, through no fault of
19 the owner or operator, has not taken final action on
20 applications for permits or other agency approvals needed to
21 comply with this part.

22 E. A municipal solid waste combustor ash land
23 disposal facility which accepts ash from a waste combustor which
24 has not ~~been-tested~~ completed four or more quarters of ash
25 testing according to part 7035.2910, must place the ash over a
26 liner that complies at a minimum with the design requirements of
27 subpart 11, item ~~Ø~~ P, unless:

28 (1) the waste combustor ash will be treated
29 before disposal to reduce the leaching potential to such a
30 degree that the treated ash will not exceed the maximum
31 leachable contaminant levels established in subpart 5; or

32 (2) the owner or operator demonstrates, based on
33 ash testing data from a similar waste combustor, where
34 similarity is based on design, operation, and characteristics of
35 waste combusted, that the ash which has not been tested is not
36 likely to exceed the maximum leachable contaminant levels of

1 subpart 5, and the ash is placed over a liner which complies
 2 with the design requirements of subpart 11, item L₇-M₇ or N,
 3 whichever applies to the type of ash to be disposed of. If this
 4 subitem applies, the ash must be considered in storage and the
 5 commissioner shall not approve disposal of the ash until four
 6 quarters of ash and leachate testing have been completed. If
 7 results of ash or leachate testing for the four quarters exceed
 8 the maximum leachable contaminant levels, ~~the commissioner may~~
 9 ~~require that~~ the ash must be removed from the land disposal
 10 facility. For the purpose of this subitem results must be
 11 calculated according to subpart 4, item A, subitems (1) to (3).

12 Subp. 5. **Maximum leachable contaminant levels.** The
 13 maximum leachable contaminant levels are as follows:

14	Substance	Maximum leachable
15		contaminant level (µg/l)
16		
17	Arsenic	750
18	Barium	30,000
19	Boron	9,000
20	Cadmium	60
21	Chromium	450 1,500
22	Copper	15,000
23	Lead	300
24	Manganese	9,000
25	Mercury	30
26	Nickel	2,100
27	Selenium	300
28	Silver	300
29	Tin	60,000
30	Zinc	21,000
31		

32 Subp. 6. **Location.** The owner or operator must locate a
 33 waste combustor ash land disposal facility according to parts
 34 7035.2555 and 7035.2815, subpart 2.

35 Subp. 7. **Hydrogeologic evaluations.** The owner or operator
 36 must complete a hydrogeologic evaluation of the site according
 37 to part 7035.2815, subpart 3.

38 Subp. 8. **Groundwater performance standards.** The owner or
 39 operator must design, construct, operate, and maintain the
 40 facility to achieve compliance with part 7035.2815, subpart 4.

41 Subp. 9. **General design requirements.** A waste combustor
 42 ash land disposal facility must meet the design requirements of
 43 part 7035.2815, subpart 5, items A, B, D, E, F, and G in
 44 addition to the following general design requirements:

45 A. The fill area at a waste combustor ash land

1 disposal facility must be located at least 200 feet from the
2 nearest property line, unless a shorter distance is approved by
3 the commissioner as sufficient for performing facility
4 monitoring, performing any necessary remedial activities, and
5 minimizing deposition of dust on adjacent property, based on
6 filling procedures, facility design, facility geographic
7 location, existing land restrictions and results of monitoring
8 dust emissions at the facility or a similar existing facility.

9 B. The facility design must include:

- 10 (1) cover systems according to subpart 10;
11 (2) a liner system according to subpart 11;
12 (3) a leachate collection and treatment system
13 according to subpart 13; and
14 (4) a water monitoring system according to
15 subpart 16.

16 Subp. 10. **Cover system.** The owner or operator must design
17 and maintain a cover system capable of minimizing infiltration
18 of precipitation into the fill areas, preventing surface water
19 ponding on fill areas, preventing erosion of surface and side
20 slopes, minimizing the creation and movement of dust, retaining
21 slope stability, reducing effects of freeze-thaw and other
22 weather conditions, maintaining vegetative growth while
23 minimizing root penetration of the low permeability cover layer,
24 discouraging vector and burrowing animal intrusion into the
25 site, and attenuating contaminants contained in leachate. A
26 complete cover system must consist of intermittent,
27 intermediate, and final covers as outlined in items A to C.

28 A. The owner or operator must place intermittent
29 cover on all exposed ash according to the approved operation and
30 maintenance manual for the site and subitems (1) to (4). In all
31 cases, intermittent cover placement must be adequate to prevent
32 fugitive dust emissions.

33 (1) The owner or operator of a facility which
34 disposes of bottom ash or combined ash must place intermittent
35 cover frequently enough so that the bottom ash or combined ash
36 is not left uncovered for more than 48 hours. The percent

1 moisture of exposed ash must not be less than ten percent at any
2 time. In the active work area, newly delivered waste combustor
3 ash may be used to cover previously placed ash.

4 (2) The owner or operator of a facility which
5 disposes of fly ash must cover the fly ash immediately after it
6 is placed and compacted. Fly ash must be treated to minimize
7 emission of fugitive dust before it is placed in the land
8 disposal facility.

9 (3) The commissioner may approve less frequent
10 cover placement based on a demonstration by the owner or
11 operator that the alternative frequency would not increase the
12 potential for damage to human health or the environment. The
13 commissioner, in approving the proposed alternative cover
14 system, must consider the characteristics of the proposed cover
15 material, the characteristics of the waste, the design and
16 operation of the facility, moisture content of the ash,
17 screening or other engineered methods for preventing dust
18 production, and season of the year.

19 (4) The cover materials used and cover depth must
20 be sufficient to cover the ash completely.

21 B. The owner or operator must place intermediate
22 cover on all filled surfaces of the facility where no additional
23 ash will be deposited within 30 days. The intermediate cover
24 must be at least six inches deep if soil or similar material is
25 used, cover the ash completely, and be graded to prevent surface
26 water ponding.

27 C. The owner or operator must place final cover
28 according to the requirements of subitems (1) to (3) and part
29 7035.2815, subpart 6, item D, subitems (1), (2), and (6) to
30 (9). A final cover system must consist of at least three
31 layers: a barrier layer, a drainage layer, and a top layer.

32 (1) If the final cover uses a barrier layer
33 constructed of soils or similar materials, the barrier layer
34 must be at least 24 inches thick. The barrier layer must have a
35 maximum permeability no greater than 1×10^{-6} centimeters per
36 second. At least the top six inches after compaction of a

1 barrier layer must not contain waste products which could
2 contaminate water collected by the drainage layer. The drainage
3 layer must be at least six inches thick and have an in-place
4 permeability no less than 1×10^{-2} centimeters per second. The
5 top layer must be at least 42 inches thick, of which at least
6 the top six inches is topsoil, and of sufficient depth to
7 contain the vegetative roots and protect the barrier layer from
8 freezing. The top layer must have an available water-holding
9 capacity that will promote vegetative growth. An alternative
10 cover system may be approved by the commissioner if the owner or
11 operator demonstrates that the barrier layer will be at least 24
12 inches thick, constructed of soils or similar materials, and
13 have a maximum permeability no greater than 1×10^{-7} centimeters
14 per second. The top layer of the alternative cover system must
15 be at least 18 inches thick.

16 (2) If the final cover uses a synthetic membrane
17 as the barrier layer, the membrane must be at least 30/1000 of
18 an inch thick and meet the physical property standards for the
19 material type developed by National Sanitation Foundation,
20 Standard Number 54, Flexible Membrane Liners, May 1990, Ann
21 Arbor, Michigan. Part 7035.0605 incorporates this document by
22 reference and establishes its availability. The drainage layer
23 must be at least six inches thick and have an in-place
24 permeability no less than 1×10^{-2} centimeters per second. The
25 top layer must be at least 18 inches thick, of which at least
26 the top six inches is topsoil, and of sufficient depth to
27 contain the vegetative roots. The top layer must have an
28 available water-holding capacity that will promote vegetative
29 growth.

30 (3) According to subpart 4, if results of testing
31 the specific combined, bottom, or fly ash which is placed in the
32 land disposal facility phase to be covered or results of
33 analysis of actual leachate from the phase exceed the maximum
34 leachable contaminant levels established under subpart 5, the
35 final cover system must consist of:

36 (a) a barrier layer consisting of at least

1 24 inches of compacted soils or similar materials with a
 2 permeability no greater than 1×10^{-6} centimeters per second,
 3 overlain by a synthetic membrane liner which is at least 30/1000
 4 of an inch thick and meets the physical property standards
 5 developed by the National Sanitation Foundation, Standard Number
 6 54, Flexible Membrane Liners, May 1990, Ann Arbor, Michigan;

7 (b) a drainage layer consisting of at least
 8 six inches with a permeability no less than 1×10^{-2} centimeters
 9 per second; and

10 (c) a top layer which is at least 42 inches
 11 thick, of which the top six inches is topsoil, and of sufficient
 12 depth to contain the vegetative roots and protect the barrier
 13 layer from freezing. The top layer must have an available
 14 water-holding capacity that will promote vegetative growth.

15 Subp. 11. Liners. All waste combustor ash land disposal
 16 facilities must be lined. A liner installed at a waste
 17 combustor ash land disposal facility after the effective date of
 18 ~~these rules~~ parts 7001.0040 to 7035.2915, unless otherwise
 19 allowed by part 7035.2915, subpart 4, must meet the requirements
 20 of items A to K and part 7035.2815, subpart 7, items B, C, F, G,
 21 I, K, L, M, and N. In addition, waste combustor ash land
 22 disposal facilities must comply with the design standards of
 23 item L, M, N, O, or P, based on the requirements identified in
 24 Table 1.

25 Table 1: Identification of Applicable Liner Design Standards

	Bottom Ash	Combined Ash	Fly Ash
26 Before Jan. 1, 1993:			
27 (1) Leach results < MLCL	L	M N*	N
28 (2) MLCL < Leach Results < EP	E M	M N*	P
29 (3) Leach Results > EP	E O	M O*	P
30			
31 After Jan. 1, 1993:			
32 (1) Leach results < MLCL	L	M N*	N
33 (2) MLCL < Leach results < EP	O	O P*	P
34 (3) Leach Results > EP	P	P P*	P
35			
36			

37 *Leach results must be taken from fly ash only.

38 Key: Leach results must be determined according to subpart 4.

39 MLCL means the maximum leachable contaminant levels established
 40 in subpart 5.

41 EP means the maximum concentration of contaminants for

1 ~~characteristic-of-extraction-procedure-(EP)~~ the toxicity
2 characteristic established in part 7045.0131, subpart 8, as
3 tested according to subpart 4.

4 A. If a waste combustor ash land disposal facility is
5 constructed adjacent to a mixed municipal solid waste land
6 disposal facility, the waste combustor ash land disposal
7 facility must be separated from the mixed municipal solid waste
8 land disposal facility adequately to prevent leachate from the
9 mixed municipal solid waste land disposal facility from entering
10 the waste combustor ash land disposal facility.

11 B. The liner system must consist of at least the
12 following (listed in order, starting from the lowest layer):

13 (1) a smooth, stable subgrade for placement of
14 the barrier layer by means of the placement of protective
15 material over the existing subgrade, the removal of abrasive
16 objects, organic matter, and vegetation in the subgrade, and
17 regrading;

18 (2) where required by items O and P, a secondary
19 liner and leachate collection and leak detection system;

20 (3) a barrier layer capable of containing
21 leachate generated at the facility and surface water that has
22 come in contact with waste; and

23 (4) a drainage layer above the barrier layer to
24 rapidly convey surface water and leachate from the fill area,
25 and to protect the barrier layer from puncture or other
26 disturbances that might disrupt the integrity of the barrier
27 layer.

28 C. The liner system must minimize the amount of
29 leachate leaving the fill site to the soil and groundwater below
30 the site.

31 D. The liner system must be compatible with waste
32 combustor ash and waste combustor ash leachate.

33 E. Synthetic membranes used as part of the liner
34 system must meet the specifications of the National Sanitation
35 Foundation, Standard Number 54, Flexible Membrane Liners, May
36 1990, Ann Arbor, Michigan. Part 7035.0605 incorporates this

1 document by reference and establishes its availability.

2 F. The owner or operator must construct the facility
3 in accordance with subpart 14 and certify construction in
4 accordance with part 7035.2610.

5 G. The owner or operator must design, construct, and
6 maintain synthetic membranes in direct continuous contact with
7 the soil layers beneath them to the greatest extent feasible.

8 H. Drainage layers must consist of at least 12 inches
9 of suitable soil or an equivalent synthetic material. Drainage
10 layers must not contain sharp stones or other sharp objects
11 which may puncture the synthetic membrane, and must be resistant
12 to clogging.

13 I. The owner or operator must design the liner and
14 leachate collection system to minimize the number of places
15 where the liner is penetrated.

16 J. When calculating efficiency as required for
17 compliance with items L to P, the owner or operator must
18 consider the liner thickness, the liner slope, the saturated
19 hydraulic conductivity of the liner and drainage layer, the
20 drainage layer thickness, the permeability of the drainage layer
21 and liner, the porosity of the drainage layer, the flow distance
22 to collection pipes, and the amount of leachate to be generated
23 and collected based on annual infiltration and groundwater
24 inflow.

25 K. In the engineering report required in part
26 7001.3480, item E, the owner or operator must discuss the design
27 of the liner system and address at least the following:

28 (1) the source and quantity of natural soils
29 capable of meeting the requirements of this subpart;

30 (2) the likelihood and consequences of failures
31 caused by puncture, tear, creep, freeze-thaw, thermal stress,
32 abrasion, swelling, extraction, oxidative degradation, exposure
33 to ultraviolet radiation, acidic and alkaline conditions,
34 concentration of ions, organic constituents, pressure, and the
35 presence of gases, rodents, microbes, and root penetration;

36 (3) the composition of the drainage layer and

1 liner including the soil gradations, percent fines, mineral
2 composition, and solubility under acidic to alkaline conditions;
3 and

4 (4) the calculations and assumptions used in
5 choosing the particular design proposed for the facility.

6 L. The liner of ~~a-bottom~~ an ash land disposal
7 facility, required by table 1 to meet the requirements of this
8 item, must comply with subitems (1) to (3), ~~unless item 0 or P~~
9 ~~applies~~.

10 (1) The barrier layer must be a composite liner
11 which includes a synthetic membrane which is at least 60/1000 of
12 an inch thick placed over a layer of recompacted clay or other
13 natural material with a permeability of no more than 1×10^{-7}
14 centimeters per second which is at least one foot thick.

15 (2) The liner system must be designed to have a
16 leachate collection efficiency of at least 95 percent of the
17 precipitation falling on the fill area before final cover
18 placement.

19 (3) The liner system in combination with the
20 cover system must achieve an overall site efficiency of at least
21 98.5 percent collection or rejection of the precipitation that
22 falls on the disposal area.

23 M. The liner of ~~a-combined~~ an ash land disposal
24 facility, required by table 1 to meet the requirements of this
25 item, must comply with subitems (1) to (3), ~~unless item 0 or P~~
26 ~~applies~~.

27 (1) The barrier layer must be a composite liner
28 which includes a synthetic membrane which is at least 60/1000 of
29 an inch thick placed over a layer of recompacted clay or other
30 natural material with a permeability of no more than 1×10^{-7}
31 centimeters per second which is at least two feet thick.

32 (2) The liner system must be designed to have a
33 leachate collection efficiency of at least 95 percent of the
34 precipitation falling on the fill area before final cover
35 placement.

36 (3) The liner system in combination with the

1 cover system must achieve an overall site efficiency of at least
2 98.5 percent collection or rejection of the precipitation that
3 falls on the disposal area.

4 N. The liner of ~~a fly~~ an ash land disposal facility,
5 required by table 1 to meet the requirements of this item, which
6 accepts ash which does not exceed the maximum leachable
7 contaminant levels of subpart 5 must comply with subitems (1) to
8 (3).

9 (1) The barrier layer must be a composite liner
10 which includes a synthetic membrane which is at least 60/1000 of
11 an inch thick placed over a layer of recompacted clay or other
12 natural soil-layer material with a permeability of no more than
13 1×10^{-7} centimeters per second which is at least three feet thick.

14 (2) The liner system must be designed to have a
15 leachate collection efficiency of at least 98 percent of the
16 precipitation falling on the fill area before final cover
17 placement.

18 (3) The liner system in combination with the
19 cover system must achieve an overall site efficiency of at least
20 99.5 percent collection or rejection of the precipitation that
21 falls on the disposal area.

22 O. As provided by subpart 4, after January 1, 1993,
23 the liner of a bottom ash or combined ash land disposal facility
24 that accepts ash which exceeds the maximum leachable contaminant
25 levels of subpart 5 must comply with subitems (1) to (3).

26 (1) The liner must be a double liner which
27 includes at a minimum, from top to bottom:

28 (a) a drainage layer which complies with
29 item H;

30 (b) a synthetic membrane which is at least
31 60/1000 of an inch thick;

32 (c) a secondary drainage layer which
33 complies with item H;

34 (d) a synthetic membrane which is at least
35 30/1000 of an inch thick; and

36 (e) a compacted clay layer which is at least

1 two feet thick with a permeability no greater than 1×10^{-7}
2 centimeters per second.

3 (2) The liner system must be designed to have a
4 leachate collection efficiency of at least 98.5 percent of the
5 precipitation falling on the fill area before final cover
6 placement.

7 (3) The liner system in combination with the
8 cover system must achieve an overall site efficiency of at least
9 99.8 percent collection or rejection of the precipitation that
10 falls on the disposal area.

11 P. The liner of a waste combustor ash land disposal
12 facility that accepts fly ash which exceeds the maximum
13 leachable contaminant levels of subpart 5, or bottom or combined
14 ash which exceeds the maximum concentration of contaminants for
15 characteristic of extraction procedure (EP) toxicity established
16 in part 7045.0131, subpart 8, must comply with subitems (1) to
17 (3).

18 (1) The liner must be a double ~~composite~~ liner
19 which includes at a minimum, from top to bottom:

20 (a) a drainage layer which complies with
21 item H;

22 (b) a synthetic membrane which is at least
23 60/1000 of an inch thick;

24 ~~(c) a recompactd soil layer which is at~~
25 ~~least two feet thick with a permeability no greater than 1×10^{-7}~~
26 ~~centimeters per second;~~

27 ~~(d)~~ a secondary drainage layer which
28 complies with item H;

29 ~~(e)~~ (d) a synthetic membrane which is at
30 least 30/1000 of an inch thick; and

31 ~~(f)~~ (e) a ~~recompactd~~ compactd clay layer
32 which is at least ~~two~~ three feet thick with a permeability no
33 greater than 1×10^{-7} centimeters per second.

34 (2) The liner system must be designed to have a
35 leachate collection efficiency of at least 99 percent of the
36 precipitation falling on the fill area before final cover

1 placement.

2 (3) The liner system in combination with the
3 cover system must achieve an overall site efficiency of at least
4 99.9 percent collection or rejection of the precipitation that
5 falls on the disposal area.

6 Subp. 12. **Cover and liner materials evaluation.** The owner
7 or operator must evaluate soils intended for use as cover or
8 liner material as appropriate for the properties shown in part
9 7035.2815, subpart 8.

10 Subp. 13. **Leachate detection, collection, and treatment.**
11 The facility must include a leachate detection, collection, and
12 on-site or off-site treatment system designed in accordance with
13 the requirements of part 7035.2815, subpart 9.

14 Subp. 14. **Construction requirements.** The owner or
15 operator must follow the construction requirements of items A to
16 C and part 7035.2815, subpart 12. The owner or operator must
17 incorporate all applicable construction requirements into
18 project specifications for all major design features.

19 A. Clay barrier layers must be compacted in lifts
20 which are not deeper than the feet on the equipment used to
21 compact the liner, or six inches after compaction, whichever is
22 less.

23 B. Clay barrier layers must be bladed and rolled
24 smooth after the final lift is compacted.

25 C. An on-site inspector qualified by training and
26 experience must be present during construction of liner systems
27 and final cover.

28 Subp. 15. **Operation and maintenance requirements.** The
29 owner or operator must operate the facility according to items A
30 to V.

31 A. A waste combustor ash land disposal facility must
32 be operated by a certified operator, as defined in parts
33 7048.0100 to 7048.1300. A certified operator must be present
34 during the time that the facility is open to accept ash.

35 B. Ash must be spread and compacted in layers which
36 are one foot or less in depth before compaction.

1 C. Appropriate compacting equipment must be used to
2 achieve compaction adequate to prevent settlement.

3 D. To determine compliance with subpart 10, item A,
4 subitem (1), the moisture content of ash in areas where
5 intermittent cover has not been placed must be tested. The
6 sampling procedures of subitems (1) to (4) must be followed.

7 (1) Ash moisture content must be tested at least
8 monthly.

9 (2) Ash moisture content at six or more locations
10 on the exposed ash surface must be tested using random methods
11 to select the horizontal location of moisture testing samples.

12 (3) If the moisture content of ash samples is not
13 analyzed immediately, samples must be protected from changes in
14 composition due to exposure to precipitation, wind, sun,
15 absorbent materials, and extremes of temperature.

16 (4) Testing must be performed by persons
17 qualified by training and experience.

18 E. Ash must be placed and compacted at a moderate
19 slope to promote drainage off the fill area while achieving good
20 compaction.

21 F. Ash must be covered in accordance with the
22 approved intermittent cover system required in subpart 10, item
23 A.

24 G. When no ash will be placed on a fill area for 30
25 days or more, intermediate cover, as defined in subpart 10, item
26 B, must be placed over the ash.

27 H. Each fill phase must be covered when it reaches
28 final permitted waste elevations, according to subpart 10, item
29 C, as soon as possible, considering limitations such as weather
30 conditions.

31 I. Each fill phase must be outlined with grade stakes
32 or another marking method before placing waste in the phase.

33 J. Resource recovery operations, including but not
34 limited to ferrous metal recovery, must be confined to
35 designated areas approved in the facility permit. Storage areas
36 must be kept as small as practical; they must not interfere with

1 normal disposal operations.

2 K. The facility must be inspected according to the
3 schedule identified in the facility's operations manual and
4 approved by the commissioner for at least the following items:
5 dust emissions, uncontrolled vegetative growth, soil erosion on
6 slopes and completed areas, vandalism on the monitoring systems,
7 rodents and burrowing animals, malfunctions in the leachate
8 detection and collection systems, and settlement in completed
9 areas.

10 L. Leachate must be sampled and analyzed according to
11 subpart 16.

12 M. The leachate collection system must be cleaned
13 annually.

14 N. The amount of leachate collected must be monitored
15 and recorded.

16 O. Corrective actions must be performed to repair any
17 conditions not in compliance with parts 7035.2525 to 7035.2885.

18 P. Groundwater must be sampled and analyzed according
19 to subpart 16.

20 Q. During wet weather conditions liners, covers, and
21 other design features that might be disrupted by additional
22 loads in a saturated condition must be protected.

23 R. The fill area must be surveyed annually before
24 November 1 by a land surveyor registered in Minnesota. An
25 updated existing conditions plan must be submitted with the
26 annual report required in part 7035.2585. The plan must show
27 the elevations of completed fill areas, areas partially filled,
28 and all design features that changed in elevation due to
29 facility operations or settlement. The remaining fill capacity
30 must be calculated and its location shown on the plan.

31 S. All fill areas must be marked with permanent
32 markers which clearly show the location of disposed ash.

33 T. The liner must be protected from freezing. At
34 least three feet of ash or other approved material must be
35 placed above the sand blanket on all lined areas by December 1
36 of each year to protect the liner from freezing. No disposal

1 may take place after December 1 in areas which have not met this
2 requirement without first testing the liner integrity and
3 receiving approval from the commissioner for the disposal.

4 U. All closure costs expended under part 7035.2625,
5 all postclosure care cost expenditures made under part
6 7035.2645, and all corrective action expenditures made under
7 part 7035.2615 must be recorded in the operating record.

8 V. The sequence and direction of below-grade
9 operations must be conducted to prevent surface water from
10 entering the fill area.

11 Subp. 16. **Ground water, surface water, and leachate**
12 **sampling and analysis.** The owner or operator must design,
13 install, and maintain a water monitoring system in compliance
14 with part 7035.2815, subpart 10. The owner or operator must
15 collect and analyze groundwater samples, leachate samples and,
16 where required in permits, orders, or stipulation agreements,
17 surface water samples, according to part 7035.2815, subpart 14,
18 items A, B, and D to Q.

19 Until the commissioner has established facility-specific
20 monitoring requirements as required by part 7035.2815, subpart
21 14, item B, the owner or operator must comply with the
22 monitoring requirements of items A and B.

23 A. Groundwater quality monitoring points at the
24 facility must be sampled at least three times per year at the
25 times specified in the facility permit. For one of the three
26 sampling events, the owner or operator must provide the field
27 measurements, laboratory analysis, and field and laboratory
28 observations listed in subitems (1) and (2). For the other two
29 sampling events, the owner or operator must provide only the
30 measurements and observations listed in subitem (1) for all
31 groundwater monitoring points. Where existing monitoring points
32 may be unsuitable for sampling some or all of the listed
33 substances, the commissioner may make appropriate changes in the
34 monitoring requirements.

35 (1) Routine list of groundwater parameters:

36 (a) Alkalinity, total as CaCO₃

- 1 (b) Aluminum, dissolved
- 2 (c) Ammonia Nitrogen
- 3 (d) Arsenic, dissolved
- 4 (e) Cadmium, dissolved
- 5 (f) Calcium, dissolved
- 6 (g) Chloride
- 7 (h) Copper, dissolved
- 8 (i) Dissolved Solids, total
- 9 (j) Iron, dissolved
- 10 (k) Lead, dissolved
- 11 (l) Magnesium, dissolved
- 12 (m) Manganese, dissolved
- 13 (n) Mercury, dissolved
- 14 (o) Nickel, dissolved
- 15 (p) Nitrate + Nitrite, as N
- 16 (q) Potassium, dissolved
- 17 (r) Selenium, dissolved
- 18 (s) Sodium, dissolved
- 19 (t) Sulfate
- 20 (u) Suspended Solids, total
- 21 (v) Zinc, dissolved
- 22 (w) Appearance (a)
- 23 (x) pH (b)
- 24 (y) Specific Conductance (b)
- 25 (z) Temperature (b)
- 26 (aa) Water Elevation (c)

27 In subitems (a) to (aa), (a) means visual observation, in
 28 field and laboratory, noting conditions such as the following,
 29 if present: color, cloudiness, floating films, other liquid or
 30 gas phases, odor; (b) means two measurements: in the field,
 31 immediately after obtaining the sample, and in the laboratory;
 32 (c) means as measured in the field before pumping or bailing, to
 33 the nearest 0.01 foot.

- 34 (2) Extended list of groundwater parameters:
- 35 (a) Barium, dissolved
- 36 (b) Boron

- 1 (c) Chromium, total dissolved
2 (d) Silver, dissolved
3 (e) Tin, dissolved
4 (f) Other parameters listed in item B
5 required by the commissioner based on their detection in
6 leachate

7 B. Leachate monitoring points at the facility must be
8 sampled at least quarterly at the times specified in the
9 facility permit. For one of the sampling events the owner or
10 operator must provide the field measurements, laboratory
11 analysis, and field and laboratory observations listed in
12 subitems (1) and (2). For at least two years, and thereafter at
13 least every other year or on a schedule determined by the
14 commissioner based on results of previous analyses, the owner or
15 operator must analyze leachate samples from one of the quarterly
16 sampling events for the parameters listed in subitem (3). For
17 the other sampling events, the owner or operator must provide
18 only the measurements and observations listed in subitem (1).

- 19 (1) Routine list of leachate parameters:
- 20 (a) Alkalinity, total as CaCO₃
 - 21 (b) Aluminum, total
 - 22 (c) Ammonia Nitrogen
 - 23 (d) Arsenic, total
 - 24 (e) Boron
 - 25 (f) Barium, total
 - 26 (g) Biological Oxygen Demand (BOD)
 - 27 (h) Cadmium, total
 - 28 (i) Calcium, total
 - 29 (j) Chloride
 - 30 (k) Chromium, total
 - 31 (l) Chemical Oxygen Demand (COD)
 - 32 (m) Copper, total
 - 33 (n) Dissolved solids, total
 - 34 (o) Iron, total
 - 35 (p) Lead, total
 - 36 (q) Magnesium, total

- 1 (r) Manganese, total
- 2 (s) Mercury, total
- 3 (t) Nickel, total
- 4 (u) Nitrate + Nitrite, as N
- 5 (v) Potassium, total
- 6 (w) Selenium, total
- 7 (x) Silver, total
- 8 (y) Sodium, total
- 9 (z) Sulfate
- 10 (aa) Suspended Solids, total
- 11 (bb) Tin, total
- 12 (cc) Zinc, total
- 13 (dd) Appearance (a)
- 14 (ee) pH (b)
- 15 (ff) Specific Conductance (b)
- 16 (gg) Temperature (b)

17 In subitems (a) to (gg), (a) means visual observation, in
 18 field and laboratory, noting conditions such as the following,
 19 if present: color, cloudiness, floating films, other liquid or
 20 gas phases, odor; (b) means two measurements: in the field,
 21 immediately after obtaining the sample, and in the laboratory.

22 (2) Extended leachate sampling parameters:

- 23 (a) Benzo(a)pyrene
- 24 (b) Benzo(b)fluoranthene
- 25 (c) Benzo(k)fluoranthene
- 26 (d) Benzo(g,h,i)perylene
- 27 (e) Chrysene
- 28 (f) Hexachlorobenzene
- 29 (g) Indeno(1,2,3-cd)pyrene
- 30 (h) Pyrene
- 31 (i) Pentachlorophenol
- 32 (j) Acetone
- 33 (k) Vinyl Chloride

34 (3) Dioxins and Furans:

- 35 (a) 2,3,7,8-TCDD
- 36 (b) Tetrachlorodibenzodioxin

- 1 (c) Pentachlorodibenzodioxin
- 2 (d) Hexachlorodibenzodioxin
- 3 (e) Heptachlorodibenzodioxin
- 4 (f) Tetrachlorodibenzofuran
- 5 (g) Pentachlorodibenzofuran
- 6 (h) Hexachlorodibenzofuran
- 7 (i) Heptachlorodibenzofuran

8 Subp. 17. **Contingency action.** The owner or operator must
9 implement actions necessary to repair site features or to
10 control, recover, or treat polluted ground or surface waters and
11 explosive or toxic gases according to part 7035.2815, subpart 15.

12 Subp. 18. **Closure and postclosure care.** The owner or
13 operator must comply with the closure and postclosure care
14 requirements of part 7035.2815, subpart 16.

15 7035.2910 MUNICIPAL WASTE COMBUSTOR ASH TESTING REQUIREMENTS.

16 Subpart 1. **Definitions.** As used in subparts 1 to 12, the
17 following terms have the meaning given them in this subpart.

18 A. "Analysis sample" means a sample which is to be
19 delivered to a laboratory for analysis.

20 B. "Composite sample" means a sample that is formed
21 by mixing two or more samples together to create a sample which
22 is representative of a longer time period or a greater amount of
23 material.

24 C. "Grab sample" refers to a sample collected at one
25 time or location.

26 Subp. 2. **Scope.** Subparts 1 to 12 apply to owners and
27 operators of municipal solid waste combustors.

28 Subp. 3. **Frequency.** The owner or operator must collect
29 ash samples at least quarterly. Sample collection must be begun
30 within seven days of January 15, April 15, July 15, and October
31 15, unless otherwise approved by the commissioner. Quarterly
32 samples and an annual composite sample formed from equal
33 portions of the quarterly samples must be analyzed according to
34 subpart 5. Quarterly samples must be analyzed within
35 appropriate sample holding times, or 45 days after sample

1 collection is completed, whichever is less.

2 Subp. 4. Test methods. The owner or operator must analyze
3 samples for total composition, leaching potential, and physical
4 characteristics for the following testing parameters, using test
5 methods issued by the United States Environmental Protection
6 Agency or the American Society of Testing and Materials unless
7 the method is approved as provided by item D. The test methods
8 must obtain detection limits equal to or less than those
9 specified in this subpart.

10 A. Total composition:

11 (1) Table 1: Quarterly Testing Parameters:

12	Parameter	Maximum
13		Detection Limit
14		
15	(a) Aluminum	2.0 mg/kg
16	(b) Arsenic	1.7 mg/kg
17	(c) Cadmium	0.16 mg/kg
18	(d) Lead	0.8 mg/kg
19	(e) Manganese	2.4 mg/kg
20	(f) Mercury	0.08 mg/kg
21	(g) Nickel	5.6 mg/kg
22	(h) Selenium	1.3 mg/kg
23	(i) Zinc	56 mg/kg
24	(j) Other parameters listed in subitem (2) or	
25	(3) which are required by the commissioner	
26	based on results of previous testing.	

27
28 (2) Table 2: Annual Testing Parameters:

29	Parameter	Maximum
30		Detection Limit
31		
32	(a) Barium	4 mg/kg
33	(b) Boron	4 mg/kg
34	(c) Calcium	40 mg/kg
35	(d) Chloride	40 mg/kg
36	(e) Chromium	0.72 mg/kg
37	(f) Copper	0.8 mg/kg
38	(g) Iron	0.4 mg/kg
39	(h) Magnesium	0.4 mg/kg
40	(i) Silver	0.8 mg/kg
41	(j) Sodium	4 mg/kg
42	(k) Strontium	2.0 mg/kg
43	(l) Sulfate	40 mg/kg
44	(m) Tin	1.2 mg/kg

45
46 (3) Table 3: Special Annual Testing Parameters:

47	Parameter	Method	Maximum
48			Detection Limit
49			
50	(a) Dioxins	EPA 8290	10 ng/kg
51	(b) Furans	EPA 8290	10 ng/kg

52
53 (4) EPA Method 3050 for metals digestion must be
54 used for total composition analysis.

55 B. Leaching potential: use EPA Method 1312, the

1 Synthetic Precipitation Leach Test for Soils, with extraction
 2 fluid no. 2 (pH=5.0) to satisfy the leaching potential testing
 3 requirements of this part.

4 (1) Table 1: Quarterly Testing Parameters:

5	Parameter	Maximum
6		Detection Limit
7		
8	(a) Aluminum	1000 µg/l
9	(b) Arsenic	25 µg/l
10	(c) Cadmium	4 µg/l
11	(d) Lead	20 µg/l
12	(e) Manganese	20 µg/l
13	(f) Mercury	2 µg/l
14	(g) Nickel	20 µg/l
15	(h) Selenium	20 µg/l
16	(i) Zinc	20 µg/l
17	(j) pH of ash and of	
18	<u>leachate produced by</u>	
19	<u>the leach test</u>	+/-0.1 pH units
20	(k) Other parameters listed in subitem (2)	
21	which are required by the commissioner based	
22	on results of previous testing.	
23		

24 (2) Table 2: Annual Testing Parameters:

25	Parameter	Maximum
26		Detection Limit
27		
28	(a) Alkalinity	1000 µg/l
29	(b) Barium	100 µg/l
30	(c) Boron	100 µg/l
31	(d) Calcium	1000 µg/l
32	(e) Chemical Oxygen	
33	Demand	4000 µg/l
34	(f) Chloride	1000 µg/l
35	(g) Chromium	18 µg/l
36	(h) Copper	20 µg/l
37	(i) Iron	10 µg/l
38	(j) Magnesium	10 µg/l
39	(k) Silver	20 µg/l
40	(l) Sodium	100 µg/l
41	(m) Strontium	50 µg/l
42	(n) Sulfate	1000 µg/l
43	(o) Tin	30 µg/l
44		

45 (3) EPA SW-846 Method 3050 must be used for
 46 metals digestion.

47 C. Physical characteristics:

48	Parameter	Method
49		
50	(1) Moisture content	ASTM D3173
51	(2) Percent combustible	ASTM D3174
52		

53 D. The owner or operator may propose alternative test
 54 methods for the commissioner's review and approval. The owner
 55 or operator must demonstrate that the proposed alternative
 56 methods are equivalent in terms of accuracy and precision to the
 57 methods required by this subpart.

58 E. The owner or operator may move a parameter from

1 the quarterly parameter lists of item A, subitem (1), and item
2 B, subitem (1), to the annual parameter lists of item A, subitem
3 (2), and item B, subitem (2), if the parameter has not been
4 detected above the detection limits specified in this subpart
5 for eight or more consecutive sampling events. The owner or
6 operator must report changes in the parameter lists as part of
7 the annual report required by subpart 10.

8 Subp. 5. **Number of analyses.** ~~Unless-bottom-ash-and-fly~~
9 ~~ash-are-mixed-as-part-of-an-internal,-mechanical-process,~~ The
10 owner or operator must collect and analyze fly ash and bottom
11 ash samples separately according to item A. In cases where
12 bottom and fly ash are mixed, collect and analyze samples of
13 combined ash according to item B, and fly ash samples according
14 to item A. If ash treatment occurs prior to disposal, collect
15 samples after treatment.

16 A. Owners and operators of facilities which manage
17 bottom and fly ash separately must test ash quarterly according
18 to subitem (1), and annually according to subitem (2).

19 (1) At a minimum the following number of samples
20 must be analyzed: four samples of bottom ash and two samples of
21 fly ash for total composition for the parameters listed in
22 subpart 4, item A, subitem (1); three samples of bottom ash and
23 three samples of fly ash for leaching potential for the
24 parameters listed in subpart 4, item B, subitem (1); and three
25 samples of bottom ash and three samples of fly ash for the
26 physical characteristics tests listed in subpart 4, item C.

27 (2) At a minimum the following number of analyses
28 of the annual composite samples must be performed: four samples
29 of bottom ash and two samples of fly ash for total composition
30 for the parameters listed in subpart 4, item A, subitem (2); two
31 samples of fly ash for total composition for the parameters
32 listed in subpart 4, item A, subitem (3); three samples of
33 bottom ash and three samples of fly ash for leaching potential
34 for the parameters listed in subpart 4, item B, subitem (2), and
35 three samples of bottom ash and three samples of fly ash for
36 moisture content in accordance with subpart 4, item C, subitem

1 (1). For at least the first two years of sampling and analyses
2 performed in accordance with this part, annual composite samples
3 must be analyzed for the quarterly testing parameters listed in
4 subpart 4, item A, subitem (1), and item B, subitem (1), in
5 addition to the annual parameters required by this subitem.

6 B. Owners and operators of facilities which manage
7 combined ash must test ash quarterly according to subitem (1),
8 and annually according to subitem (2).

9 (1) At a minimum the following number of samples
10 must be analyzed: six samples for total composition for the
11 parameters listed in subpart 4, item A, subitem (1); six samples
12 for leaching potential for the parameters listed in subpart 4,
13 item B, subitem (1); and six samples for the physical
14 characteristics tests listed in subpart 4, item C.

15 (2) At a minimum the following number of analyses
16 of the annual composite sample must be performed: six samples
17 for total composition for the parameters listed in subpart 4,
18 item A, subitem (2); two samples for total composition for the
19 parameters listed in subpart 4, item A, subitem (3); six samples
20 for leaching potential for the parameters listed in subpart 4,
21 item B, subitem (2), and six samples for moisture content in
22 accordance with subpart 4, item C, subitem (1). For at least
23 the first two years of sampling and analyses performed in
24 accordance with this part, analyze annual composite samples for
25 the quarterly testing parameters listed in subpart 4, item A,
26 subitem (1) and item B, subitem (1), in addition to the annual
27 parameters required by this subitem.

28 Subp. 6. **Ash sampling plan.** The owner or operator must
29 perform ash sampling according to an ash sampling plan approved
30 by the commissioner. Proposed changes to sampling equipment or
31 procedures must be submitted to the commissioner for review and
32 approval. The plan must contain at least the following
33 information:

34 A. specification of the training and experience
35 qualifications of persons who collect ash samples;

36 B. description of equipment used to collect, process,

1 and store ash samples;

2 C. identification of sampling equipment cleaning
3 procedures and other actions taken to prevent sample
4 contamination;

5 D. identification of the location or locations where
6 ash samples are collected;

7 E. description of procedures used to collect grab
8 samples;

9 F. description of procedures used to process grab
10 samples to form composite samples;

11 G. description of chain-of-custody and sample storage
12 procedures; and

13 H. identification of ash sampling quality assurance
14 and quality control measures.

15 Subp. 7. **Sampling equipment requirements.** Equipment used
16 for ash sampling must comply with items A to D.

17 A. Sampling equipment must be constructed of
18 materials which are compatible with ash and will not contaminate
19 samples.

20 B. Containers which are used to hold analysis samples
21 must be prepared according to standard laboratory procedures
22 identified in EPA SW-846, chapter three, for metallic analytes
23 and chapter four for organic analytes, and EPA Document
24 600/4-79-020 "Methods for Chemical Analyses of Water and
25 Wastes." Part 7035.0605 incorporates these documents by
26 reference and establishes their availability.

27 C. Sampling equipment must be cleaned before use each
28 quarter. During the sampling event, equipment must be cleaned
29 before each use or cover it to protect it from exposure between
30 uses.

31 D. Sampling equipment must be used which is large
32 enough to collect a reasonably complete range of ash particle
33 sizes. The size of the opening of sampling equipment used
34 before screening ash samples must be at least three times the
35 diameter of the largest ash particle or 12 inches, whichever is
36 smaller. Equipment used after samples have been screened must

1 have an opening size of at least two inches.

2 Subp. 8. Sample collection methods. Methods used to
3 collect samples to satisfy the requirements of this part must
4 comply with items A to H.

5 A. Samples must be collected that represent the
6 average quality of ash produced at the waste combustor during
7 the sampling event. Factors which affect the content of
8 samples, such as timing of fly ash addition to bottom ash and
9 sample collection locations must be considered.

10 B. Samples must be collected at times and locations
11 which have been selected before sample collection begins for
12 that quarter.

13 C. Samples must be collected by persons who meet the
14 training and experience qualifications specified in the approved
15 sampling plan.

16 D. Samples must be protected from changes in
17 composition due to exposure to precipitation, wind, sun,
18 absorbent or reactive materials, and extremes of temperature.
19 Samples must be stored in covered containers.

20 E. The circulation of air through sampling equipment
21 must be minimized to prevent the loss of fines and moisture. If
22 a cement mixer or similar equipment is used to mix samples as
23 required by subpart 9, items A and G, cover the equipment during
24 mixing.

25 F. Grab samples must be collected according to
26 subitems (1) to (3). Analysis samples must be taken from
27 composite samples formed by processing and mixing grab samples
28 according to subpart 9.

29 (1) Samples must be collected over a time period
30 of at least one week. Samples must be collected every day that
31 a facility operates during a week unless the commissioner
32 approves otherwise. If the waste combustor is unable to operate
33 for the entire week, sample collection must be resumed after
34 operation begins so that the final composite sample includes ash
35 collected on each day of the operating week.

36 (2) Grab samples must be collected at least eight

1 times per day at evenly-spaced intervals of no less than one
2 hour if samples are collected from a conveying system. If
3 samples are collected from a location where ash collects over
4 time, such as a storage building or truck, samples must be
5 collected from different locations so that samples represent ash
6 produced over at least eight hours.

7 (3) Grab samples must be collected of
8 approximately equal ~~volume~~ weight. Grab samples of bottom ash
9 or combined ash must consist of a minimum of 15 pounds (seven
10 kilograms) of ash. Grab samples of fly ash must consist of a
11 minimum of one pound (one-half kilogram) of ash if the waste
12 combustor produces less than ten tons of fly ash in one week,
13 and two pounds (one kilogram) of ash if the waste combustor
14 produces ten tons or more of fly ash per week.

15 G. A minimum of three pounds (one and one-half
16 kilograms) of each ash composite sample must be retained for at
17 least one year. These samples must be held in moisture-tight
18 containers which are filled as full as possible, protected from
19 sunlight and extremes of temperature, and kept in a secure place.

20 H. All analysis samples must be refrigerated and the
21 samples retained according to item G.

22 Subp. 9. **Sample processing.** The owner or operator must
23 process bottom and combined ash samples according to items A to
24 H. Fly ash samples must be processed according to items A and H.

25 A. Grab samples must be thoroughly mixed together to
26 form one composite sample for each type of ash collected.

27 B. Samples must be screened using a three-eighths
28 inch screen. All or a portion of the composite sample may be
29 screened. At a minimum, 35 pounds of ash must be screened.

30 C. The weight of ash which passes through the screen
31 and the weight of ash which does not pass through the screen
32 must be recorded.

33 D. The size of friable pieces of ash which are larger
34 than three-eighths inch must be reduced.

35 E. All ash which was caught by the screen initially
36 must be rescreened to separate ash which has been reduced to

1 less than three-eighths inch by the process in item D.

2 F. The weight of ash which remains on the screen and
3 ash which passes through the screen must be recorded.

4 G. Ash which passes through the screen after size
5 reduction must be combined and thoroughly mixed with the ash
6 which originally passed through the screen.

7 H. Bottom and combined ash analysis samples from the
8 composite ash sample formed by the process in item G must be
9 taken. Fly ash analysis samples from the composite sample
10 formed by the process in item A must be taken. Ash which will
11 be retained according to subpart 8, item G, must also be taken
12 from this ash.

13 Subp. 10. Annual ash testing report. The owner or
14 operator must submit an annual ash testing report to the
15 commissioner by March 15 of each year. The report must include
16 the information in items A to F.

17 A. Results of quarterly and annual analyses of ash as
18 required by this part. Total composition results must be
19 reported on a dry weight basis.

20 B. Discussion of the data, including identification
21 of trends observed by comparing the most recent year's results
22 with those of previous years. In particular, the owner or
23 operator must assess whether the waste combustor is in
24 compliance with the goals of Minnesota Statutes, section
25 115A.97, subdivision 1, clause (1).

26 C. Data quality assurance assessment, including the
27 following:

28 (1) precision and accuracy of each method used;

29 (2) representativeness of the samples;

30 (3) potential effect of any field or laboratory
31 contamination on the sampling results; and

32 (4) qualification or rejection of data based on
33 the results of quality control samples.

34 D. Information summarizing operation of the waste
35 combustor during the ash sampling periods, and data regarding
36 ash sample processing recorded according to subpart

1 9. Operating information must include an estimate of the
2 quantity and type of wastes other than mixed municipal solid
3 waste which were combusted at the facility during the ash
4 sampling period. If leachate was added to the waste during the
5 sampling period, the quantity of leachate added and source of
6 the leachate must be noted.

7 E. Certification by the owner or operator that
8 samples analyzed to fulfill the requirements of this part were
9 collected according to the plan required by subpart 6, and that
10 no actions were taken during the sample collection period to
11 intentionally affect the results of ash sample analysis so that
12 the results would not be representative of ash typically
13 generated by the waste combustor. Such actions may include, for
14 example, altering the type of waste combusted during the
15 sampling period.

16 F. Identification of any changes in test methods or
17 parameters made in accordance with subpart 4, items D and E.

18 Subp. 11. **Special requirements for new facilities.** Waste
19 combustors which begin operation after the effective date of
20 this part, must comply with the requirements of this subpart.

21 A. The ash sampling plan required by subpart 6 must
22 be submitted to the commissioner for review and approval at
23 least 90 days before the first time waste is fired in the
24 combustor.

25 B. Samples must begin to be collected within 60 days
26 after reaching the maximum continuous rating for the waste
27 combustor, but not more than 180 days after waste is first fired
28 in the combustor.

29 C. The first four quarterly samples must be analyzed
30 for the parameters listed in subpart 4, item A, subitems (1),
31 (2), and (3), item B, subitems (1) and (2), and item C, subitems
32 (1) and (2).

33 D. Quarterly testing reports to the commissioner must
34 be submitted for the first four quarters. A report for each
35 quarter within three months after the first day of sample
36 collection for that quarter must be submitted. The contents of

1 the reports must comply with the requirements of subpart 10,
2 items A, C, D, and E.

3 ~~Subp. 12. Requirements for exemption from part 7035.2885.~~
4 ~~Owners and operators of waste combustors who apply for exemption~~
5 ~~from the ash disposal requirements of part 7035.2885 using the~~
6 ~~exemption process described in part 7035.2885, subpart 2, must~~
7 ~~comply with the ash testing requirements of this subpart.~~

8 ~~A. If part 7035.2885, subpart 2, item B, subitem (3)~~
9 ~~applies, in addition to the testing required under subparts 4~~
10 ~~and 5, the owner or operator must analyze quarterly, using EPA~~
11 ~~Method 1311, the Toxicity Characteristic Leaching Procedure, a~~
12 ~~minimum of six samples of each type of ash (bottom, fly, or~~
13 ~~combined) which is to be exempted.~~

14 ~~B. The owner or operator must submit the results of~~
15 ~~the testing required by item A to the commissioner as part of~~
16 ~~the annual report required by subpart 10.~~

17 ~~C. The owner or operator must notify the commissioner~~
18 ~~within 48 hours after the owner or operator determines that the~~
19 ~~results of testing ash as required by item A or subparts 4 and 5~~
20 ~~exceed the limits identified in part 7035.2885, subpart 2.~~

21 7035.2915 REQUIREMENTS FOR TEMPORARY PROGRAM TYPE I and II
22 STORAGE FACILITIES.

23 Subpart 1. Definitions. As used in subparts 1 to 4, the
24 following terms have the meanings given them in this subpart.

25 A. "Temporary program" means the Temporary Management
26 Program for Mixed Municipal Solid Waste Incinerator Ash approved
27 by the agency board under the authority of Minnesota Statutes,
28 section 115A.97, subdivision 4.

29 B. "Type I ash storage facility" means a facility
30 which has been designed according to part 17.0 of the temporary
31 program where municipal solid waste combustor ash is stored for
32 a limited period of time and all ash will be removed from the
33 facility at closure.

34 C. "Type II ash storage facility" means a facility
35 designed according to part 18.0 of the temporary program which

1 was classified under the temporary program as a storage
2 facility, pending adoption of parts 7035.0300 to 7035.2915.

3 Subp. 2. **Scope.** Subparts 1 to 3 apply to owners and
4 operators of type I ash storage facilities. Subparts 1, 2, and
5 4 apply to owners and operators of type II ash storage
6 facilities.

7 Subp. 3. **Type I ash storage facilities.** The owner or
8 operator must design, maintain, and operate a type I ash storage
9 facility in compliance with item A. Type I ash storage
10 facilities must be closed in compliance with item B.

11 A. The owner or operator must design, maintain, and
12 operate a type I ash storage facility in compliance with the
13 solid waste storage facility requirements of part 7035.2855,
14 subparts 3 and 4, excluding subpart 4, item B, the requirements
15 of the facility permit, and applicable parts of the temporary
16 program.

17 B. Within 18 months after the effective date of this
18 part the owner or operator must close a type I ash storage
19 facility according to parts 14 and 15 of the temporary program,
20 the facility permit, the site closure plan and subitems (1) to
21 ~~(4), or according to a closure document approved by the~~
22 ~~commissioner under part 7001.3055.~~ In cases where requirements
23 of the aforementioned documents conflict with each other, the
24 most recent requirements shall apply.

25 (1) The owner or operator must notify the
26 director at least 90 days before facility closure activities are
27 to begin.

28 (2) The owner or operator must remove from the
29 site all municipal solid waste combustor ash and contaminated
30 portions of the storage area, including the liner and underlying
31 or surrounding soils. The owner or operator must take samples
32 of the liner and underlying soils and analyze these samples to
33 determine the extent of contamination according to a plan
34 approved by the commissioner. The owner and operator must
35 submit a liner and soils removal plan to the commissioner for
36 review and approval at least 90 days before closure activities

1 are scheduled to begin. In approving the plan the commissioner
2 shall consider whether the proposed number of samples and
3 parameters to be tested will determine the extent of pollutant
4 migration.

5 (3) The owner or operator must dispose of, store,
6 or use all removed ash and contaminated portions of the storage
7 area at permitted facilities or locations.

8 (4) The owner or operator must close the storage
9 facility in a manner that minimizes the release of pollutants to
10 ground water, surface waters, soils, and the atmosphere during
11 the closure and postclosure period. Moisture must be added to
12 the ash or soils if necessary to control fugitive dust emissions.

13 Subp. 4. **Type II ash storage facilities.** Type II ash
14 storage facilities are classified as municipal solid waste
15 combustor ash land disposal facilities. As such, all operations
16 and new construction other than liner or final cover
17 construction must comply with part 7035.2885 and all other
18 applicable parts of this chapter within 45 days after the
19 effective date of this part. Liners and final cover constructed
20 more than nine months after the effective date of this part must
21 meet the requirements of part 7035.2885. At least nine months
22 before the anticipated date for beginning construction of a new
23 ~~cell~~ phase at the facility the owner or operator of a type II
24 ash storage facility must submit to the commissioner for review
25 and approval amendments to the facility's approved engineering
26 plans, engineering reports, and operations manual showing
27 changes necessary to comply with part 7035.2885.